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No. 17.

PANAMA CANAL COMMISSION BIDS

Washington, Oct. 25.—The Panama Canal Commission will in the near future advertise for bids for considerable quantities of equipment and supplies. Among the items for which proposals will be invited are machine tools for the Bas Mata-

hob left hand, long taper die tap left hand, solid dies right hand, thread gauges external and internal hardened and ground in angle of thread set to comprise various sizes, six threading tools, each tool with full set straight, single and double off-set cutters for all threads and full set of chasers



THE STEAMER LEONARD C. HANNA PASSING DETROIT.

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chin shops. These will include machine screw caps short shank dies hob right hand, long taper dies hob right hand, right hand pipe hob, left hand pipe hob; short shank die hob right hand 12 V thread; long taper die tap right hand 12 V thread, Sellers hob left hand, short shank die

for all threads, 4 to 20 pitch; one Rhodes square threading tool with full set of cutters, right and left hand thread; six No. 3 Johnson cutting off tools with 3-32-in. blades, six No. 4 Johnson cutting off tools 3-32-in. blades, 25 blades, assorted widths, for No. 3 Johnson cutting off tool; 25 blades for No.

4 Johnson cutting off tool, 40 steel sockets, various styles, with shank fitted to various size sockets, and one knurling tool with two sets each fine, medium and coarse knurls.

Another extensive list of equipment items for which the canal officials will in the near future invite bids, embodies machinery for a planing mill, and includes one blind wiper, one feed knife grinder, one emery wheel stand, one 36-in. grindstone and frame, one 30-in. cylinder planer and matcher, one 24-in. surface planing machine, one sash sticker, one wood-worker and molder, one tenoning machine, one 38-in. wheel band saw, one automatic saw setting machine, one rip saw, one saw and dado machine, one hand feeding sand papering machine, one 20-in. swing lathe with movable carriage and tool post, one sash door and blind champing machine, one power mortising and boring machine, one friezing or shaping machine, single spindle, one tilting table scroll saw, one chain saw mortiser, one automatic blind stile borer and mortiser, and one 100-H. P. power engine.

EFFECT OF LAST WEEK'S GALE

Buffalo, Oct. 24.—The great storm of last week appears to have been as full of its lessons as well as regrets as such usually are, chief of which, both considered together, may possibly be that the weather bureau is not to be depended upon to warn in time the fleet that is weak enough to be at the mercy of such a blast. It is a difficult task, for it is never quite found out beforehand whether an existing storm will increase in violence or die out or whether it will suddenly change its speed, as so often happens. These very essential points seem entirely out of the ken of the observers. Still there was gale enough on the upper lakes this time to warn the craft of Lake Erie without the notice from the weather bureau.

Two reasons exist for the failure of the weather bureau to develop its full possibilities in aiding the shipping, valuable as it is for the most part in spite of them. The observer often warns too much, till the captain reflects that he must lie idle most of the time if he heeds the warnings. Sometimes the season is peculiar in this regard. A storm of large proportions strikes the upper lakes, only to disappear without shaking the lower lakes at all. Then the captain and quite likely the owner grumble over time lost if the vessel is held in port; or they feel that they have come out best if no heed was paid to the warning. The telegraph and continued practice make the forecaster a high-grade guesser at any rate.

Buffalo harbor was filled pretty well up with craft, so that they lay in double rank sometimes and it was hard to do business after the gale went down. The harbor master finds a new problem to solve wherever he turns at such times, quite often a great part of the difficulty being in the disposition of the masters to do much as they like, though about the only thing to do last Friday was to hang fast to the tie post as soon as one was taken. There is at least one advantage in the early storm. It will put the harbor master in training for the laying up of the fleet when ice and snow begin to fresco the hulls of the fleet. Every season adds to the difficulties in this line and this one promises to be no exception.

Not only are the vessels longer than they were, but there is promise of a late run of grain, which will oblige many more vessels to winter here than would otherwise do. Already it is here in good quantity, though the extent of the elevator room is anything but inviting to business. But for the fact that there is no promising outlet anywhere the week's receipt of 4,575,000 bu. would have been cut down materially, and if the week had been a quiet one the amount would have been much more than it is, so it seems that Buffalo is doing her share of the business. Canada is showing her need of us yet by sending down wheat liberally from Fort

William, a receipt of 2,000,000 bu. or so being already reported this fall. Our government is still so kind to its farmers that it will not permit us to use this elegant crop.

With the great demand for transportation the canal is fast making up for what it lost during the slack times of midsummer, the little fleet taking out 660,000 bu. of grain last week, which is something over one-seventh of the receipts. With anything of the fleet of former days the present elevator congestion would be impossible. Buffalo is quite pleased to note the cry of alarm that is coming up from New York these days over what is called the ruin of its grain trade by diversion to Philadelphia and Baltimore. It is well known that but for the entirely disinterested and constant labor of Buffalo men who had no grain or harbor interests the barge canal law would never have gone through. New York, as usual, went just as far as it was thought of account to that port or individuals in it, and Buffalo did the rest, which happened to be a large share of the whole. Now New York is looking to the barge canal to save its grain trade.

This port does not expect to profit largely by the barge canal, unless it manages to increase iron manufactures by it, a problem still to be solved. But New York is decidedly at sea in supposing that the figured size of an elevator corresponds with its capacity, where cargoes are kept intact as they are here. A New York paper, apparently with an ancient Buffalo elevator list as authority, speaks of our 35,000,000 bu. capacity, finds only 2,700,000 bu. in store here, and lays the discrepancy between possibility and performance to the railroads, which will now take grain only subject to delay.

The fact is, though, that the elevator business has been so unprofitable here of late that the figured capacity of elevators worth using is down to about 19,000,000, and the running capacity must be marked down to about 12,000,000 bu. Besides, nobody knows what is in the elevators, on account of the practice of failing to record the grain that is checked out for shipment. New York will do well to look home for the refusal of grain shippers to patronize her. Grain naturally goes there sooner than to the southern ports.

JOHN CHAMBERLIN.

NAVAL HOSPITAL BIDS REJECTED

Washington, Oct. 25.—Considerable significance attaches to the decision just reached by Secretary of the Navy Bonaparte to reject all proposals for furnishing boilers for the new naval hospital at Washington, on the ground that there is no competition for this contract under existing conditions. The specifications in the premises describe but one make of boiler, owing to a recommendation of the bureau of medicine and surgery that the award be made to the Babcock & Wilcox Co. In conjunction with the secretary's decision this recommendation is now withdrawn. The action taken is due to the protest of the Stirling company which called the attention of the secretary to the general purchase of Stirling boilers by the bureau of yards and docks and the bureau of equipment of the navy department. As a result of the turn of affairs above outlined new specifications have been prepared and a readvertisement for bids will take place.

In Mr. John Mansfield's book, "Sea Life in Nelson's Time," there is a stage which states that one-third of a ship's company is composed of landsmen, and that one-eighth of the entire number serving in the British navy were foreigners. In other words, out of every hundred men who fought under Nelson, thirty-three were landsmen, twelve and one-half foreigners, or forty-five non-British seamen. These facts are brought out in opposition of the agitation for the exclusion of foreigners in the merchant marine. The thing, however, appears to be impossible to accomplish.

RELATIONS BETWEEN EMPLOYER AND EMPLOYED*

By Francis L. Robbins.

In this greatest workshop of the world there is no subject in which we are more vitally interested than in the relations existing between the employer and the employed. The people of this community, taking Pittsburg as the center, and including the Monongahela, East Liberty, Chartiers, Beaver and Mahoning valleys and the Connellsville coking field, are dominant in the manufacturing, coal mining and coke producing industries of this country, and must assume the responsibility, whether they desire it or not, of setting the pace for the whole country by their treatment of each other in their relative positions of employer and employee.

When your committee invited me to speak to you and asked me to choose my subject, I felt that as an employer speaking to a body composed of employers I should like to present some thoughts on this subject so near my heart, and one in which we are all so deeply concerned. The interests represented by capital and labor are reciprocal, and I believe each has an equal right to organize, subject to the laws of the United States. Combinations whose values are equal to capitalization, their acts open to government inspection, their results made public by published yearly statements, managed by fair-minded conservative men, are of benefit to their employees and the public at large.

Labor unions founded upon right principles, under the leadership of honest, conservative officers, are necessary for the protection of employees, and often an aid to the employer who is willing to pay just wages and establish fair conditions, but is hampered by employers who are not. Every now and then you hear a man say "I am going to run my own business and not be dictated to by my employees," and as like as not he is associated with his competitors in an organization or pool where the majority makes the prices at which he sells his commodity or restricts his product. His position is thoroughly inconsistent, and you cannot successfully deal with labor and be inconsistent. Fair treatment from both sides, recognition of each other's natural rights and absolute adherence to contracts are essential. It is only through such means that prejudice and opposition will give way and confidence between employer and employee can be established. Labor cannot be enslaved, neither can capital be intimidated without conflict and loss to each.

Mutual agreements are much better than compulsory laws or arbitration, and more satisfactory to both the employer and employee, but if capital and labor do not unite in making joint trade agreements a successful method of settling wage question, compulsory laws will become a necessity. Sympathetic strikes are an abomination and a menace to organized labor, and national labor leaders are opposed to them. They should be fought by employers and employees and frowned upon by the public.

In the interstate agreement of bituminous operators and miners, which is such a conspicuous example of joint trade agreement as affecting the greatest number of people, it is expressly agreed that no sympathetic strike shall be permitted, and experience has shown us that a wage agreement is regarded by the miners as binding and must be observed during the term of contract. All labor organizations should do the same.

My experience with labor leaders is that responsibility tends toward conservatism, and I have never known a successful labor leader who did not become more conservative as his experience and responsibility increased.

*Address delivered before the Merchants and Manufacturers' Association, Pittsburg Country Club, Oct. 10.

Experience and reason teach them that labor's best interests lie in harmonious relations with capital, and that they must control, direct and guide their less intelligent fellow men into such relationship wherever it is possible. It is the duty of employers to become personally familiar with trade conditions, and not delegate to others their responsibilities in the matter of establishing wages and conditions under which the labor is performed. Too often employers trust the establishing of wages entirely to subordinates whose recommendations are accepted without personal investigation.

In the Pittsburg Coal Co. we have endeavored to show our interest in the welfare of our employees in a practical manner. Shortly after our organization we inaugurated a method to enable the employees to share in the profits. We formed an Employees' Association through which the employees could purchase the preferred stock of the company by the payment of one dollar per share per month, the company carrying the loan at five percent interest. This plan has been the means of permitting a great many of the company's employees to make saving that otherwise they would not have made. The plan has interested them also in the success of the company, and its direct benefits are shown in the friendly feeling existing between the officials of the company and its employees. The statement has been made that this friendly feeling was endangered in the recent temporary passing of the dividend. There never was a particle of truth in this statement, because any dissatisfied employee is entitled to receive his money with five percent interest in place of the stock.

That the employees appreciate the opportunity offered through the Employees' Association and have confidence in the future of the company is evidenced by the fact that the temporary suspension of our preferred dividend has not materially reduced the total of shares under contract for delivery to them upon which they make monthly payments of one dollar per share. A year ago this total number of shares of Pittsburg Coal Co. preferred stock contracted for by the employees was about 8,300, of which 2,623 have since been delivered to them in the closing up of the first thirteen series of purchase contracts. Under the plan a new series is started on the first of each month, and the contracts in the new series so greatly exceed the contracts matured and the contracts canceled to date that there are upwards of 14,000 shares contracted for at this time. Employees are given the greatest freedom as to the number of shares that they may pay for in this way and as to withdrawals. They may cancel their contracts at any time upon thirty days' notice and receive back all of the money paid in plus interest at the rate of five percent per annum.

In addition to the 2,623 shares already acquired by the employees through the association on payments of \$1 per month per share, there have been not less than 4,000 shares purchased outright by employees through the association.

We also inaugurated a death and accident association, with a lodge at each mine, the expense of which is in part borne by the company. We also established an old age pension fund, to which the company contributes aid and co-operation. The organization of the lodges sharing in the death and accident and the pension benefits is voluntary at each mine. No lodge is organized until the majority of the operatives of the mine agree to be governed by the general by-laws adopted at a convention at which each of the company's mines was represented by delegates elected by the employees at such mines. The treasurer of the Employees' Association is treasurer of

each of the lodges. All disbursements therefore are made from the company's general office by the treasurer of the Employees' Association. The benefits are graded in seven classes, ranging from \$150 for a fatal accident while at work, of which the company directly contributes one-half, down to benefits of \$5 per week for minor accidents.

From the organization of the relief work of the Employees' Association to Sept. 30 of this year, was distributed in benefits among the families of the employees a total of \$250,000.

The pension fund received at the start a contribution of \$10,000 from the company, and is being built up by joint monthly payments from the employees and the company. All expenses of the association are paid by the company, amounting to about \$10,000 annually.

We regard our plan of profit sharing, of accident insurance, and of pensions, as a practical and satisfactory solution of the problem which arises with the present tendency to concentrate the control of the management of business in large corporations. In this process there is a constant increase in the percentage of those whose only interest in the business is their daily, weekly or monthly wage allowance. This tends to widen the separation of the employer and the employee without some such reuniting factor as the Employees' Association of the Pittsburgh Coal Co.

More than any other industry, coal mining is of local benefit, and a necessity in this community. The price of a ton of coal delivered in this city is almost entirely made up of wages paid for labor, supplies and transportation. In turn the money so received is again paid out in this vicinity and contributes to the general welfare of the entire community. The consumer is directly interested in the cost of the coal because it enters into his cost of operation, or into his living expenses, and he is also interested in seeing that fair wage agreements are made between the operator and the miner, so that his business will not suffer by reason of a strike or lockout which will in turn compel him to close down for lack of fuel. The merchants are interested because the mines and miners are large consumers when working, and the farmers for the same reason. The railroads are interested because of the large tonnage they receive for transportation and on account of their fuel supply. Therefore, the public is directly interested in the matter of wage agreements, and should act as an impartial jury in case of any disagreement between the employer and employee.

"With public sentiment," said Abraham Lincoln, "nothing can fail. Without it nothing can hope to succeed." If we accept this statement as true, then we should not depend solely upon the public press for our information, but there should be some method of education where all sides are represented and free discussion permitted. This was the purpose in the founding of the National Civic Federation of Labor. It is composed of three classes, the public, the employer and the employee, each having equal representation. It is not an arbitration board, in fact it would not act as such if requested, but it is the means of bringing representative men of all classes together, and many differences have been adjusted through its good offices. What good can come through a National Civic Federation can in a less degree be accomplished by a local organization. This association could do the community no better service than to inaugurate such a movement. It would furnish a medium through which by debate, personal contact and discussion, the employer, employee and the representatives of the public can meet and exchange views, and each become familiar with the

other's point of view. Human nature is the same in all of us, and we are too prone to confine ourselves to our own viewpoint. To reach settlements, leaders must look at questions from each other's standpoints, as well as from their own.

Such an organization also provides the machinery through which overtures can be made to both sides in a dispute and bring about a meeting where differences can be adjusted when for obvious reasons neither of the parties in conflict would make advances to the other.

I believe compulsory arbitration to be impracticable, and that it would be unsatisfactory in its results. I am, however, in favor of compulsory education, and I would make patriotism the keystone. I would teach honor, respect, pride and reverence for the flag, and that it floats over the greatest nation on the earth and represents the grandest form of government; that the right of American citizenship which makes the capitalist and laborer equal, places upon each the same obligation to respect, maintain and support the law of the land.

He who has acquired property is not a socialist. Teach them that the right of citizenship is as great a treasure and that he who has it is a partner in a government which respects and protects the rights and liberty of each citizen, and that the humblest born may fill the highest position in the land. Children brought up in this atmosphere of reverence and patriotism will forget the land of their father's birth and become thorough Americans, and join with all patriotic citizens in the proud acclaim, "Breathes there a man with soul so dead who never to himself hath said, 'This is my own, my native land.'" This is the duty we owe to coming generations, but the duties of the present are upon us also.

Let us do our duty as citizens by filling the executive offices of the government, our legislative bodies and the courts with our ablest and most patriotic men, and then give them our hearty support. Let us criticise less and praise more. A patriot cannot be an oppressor, whether he be a capitalist or a laborer. Let us cultivate civic, state and national pride. We have reason to be very proud of our beloved country. Let us show it in our acts, words and deeds.

A MASTER'S EXTRAORDINARY LETTER

Duncan E. Morris, master of ocean vessels, surrendered his license a few days ago to the United States inspectors at Seattle, accompanied by the following extraordinary letter:

Local Inspectors of Hulls and Boilers, Seattle—Dear Sirs: Enclosed find my license, which I surrender to you. I find, after consulting my own conscience, that it would be cowardly for me to continue to sail on it, since my fellow seamen are denied the same privilege. When I obtained my license as mate in San Francisco I believed the end justified the means. As the laws with regard to examining seamen were only a farce, I slipped through with hundreds of others. I would not have you think I surrender this because of fear of being detected if I am guilty. Certainly I would not be found out. It is simply my duty to my fellow men, and if there is a God I am doing right; if not, I am a damned fool. Most respectfully,

D. E. MORRIS.

The United States secret service is now investigating the means whereby a number of men obtained licenses to sail vessels on the Pacific coast. Evidence has been submitted to show that a number obtained licenses through perjury.

Wm. Watson has been elected chairman of the Cunard Steamship Co., succeeding the late Lord Inverclyde. Mr. Watson, who has served as deputy chairman for three years, was born at Charlestown, S. C., about sixty years ago, of English parents and removed to Liverpool at the age of eighteen, where he became an important factor in the cotton business. He is said to be of untiring energy and remarkably clear-sighted and tactful.

PRACTICE OF ANNUAL GUARANTEES

Washington, Oct. 23.—There is a growing disposition on the part of the machine tool manufacturers, ship builders, iron and steel supply houses and other firms doing business with the war and navy departments of the government to adopt the practice of filing at Washington what are known as "annual guarantees," and this is a procedure which, for the best interests of the bidders on government contracts cannot be too strongly commended.

Under existing conditions any bidder upon a contract to be awarded by the war or navy department must file with his proposal a guarantee, properly executed by a United States officer or notary public guaranteeing that should his proposals be accepted for any one or more of all the schedules offered he will within ten days after the receipt of notice of such acceptance, execute the required contract for the transaction and give bond with good and sufficient surety. Or if a bidder does not file such a guarantee with each and every proposal a certified check for the full amount of the proposal must accompany the bid.

Any failure to accompany a bid with a guarantee or certified check prevents the proposal from being considered and there is not a week but what the department officials throw out as "informal" bids which in many instances would win contracts but which are barred simply because the bidders through ignorance or oversight neglect some one of the numerous requirements in connection with the guarantee and for the proper observance of which the department officials are sticklers.

As an alternative for the individual guarantee for each bid the use of certified checks has some advantages but it also has numerous disadvantages from the fact that occasionally such checks are lost or mislaid, either by a bidder's clerks in making up the documents for submission to the department or else by the department clerks in opening the bids and filing the proposals. In any event there are likely to be unavoidable delays in returning certified checks to unsuccessful bidders since in an office where not infrequently hundreds of bids are opened in a single day the volume of business is so heavy that a fair interval of time is required for its disposition in the ordinary routine.

As a solution for these problems which are so serious that very often the loss of a contract is involved, the more far-sighted firms are now having recourse to the annual guarantee and more than two hundred of the most prominent firms doing business with the government are now protected in this manner. The annual guaranty is executed by any bonding or guaranty company authorized to act in this manner—this includes all the leading companies—and is in substance a duplicate of the individual guarantee above mentioned save that it covers any and all bids submitted during the year by the firm or individual in whose favor it is drawn. Whereas in the case of an individual proposal the bondsmen merely agree in the event of failure to enter into contract, to make good the difference between the proposal of the bidder on whose behalf they are acting and that which may be accepted in the one instance involved the surety company presenting an annual guarantee agrees to similarly stand behind all contracts made by their client during the year, even though as is frequently the case the amounts involved are hundreds of thousands of dollars.

Of course this plan saves time and worry for the bidder who adopts it, since in submitting a bid he merely indorses his proposal with the inscription "annual guar-

antee," and at the opening of bids the officials after satisfying themselves by consulting a card index that such an annual arrangement is in force on behalf of any bidder give consideration to the proposal without further assurances. Naturally the department officials are warmly in favor of this plan, since it not only simplifies their work in opening and considering bids but also spares them much dissatisfaction on the part of bidders whose proposals are thrown out because of some slight technicality.

The cost of execution for such annual guarantees is understood to be very moderate, the fees of the bonding companies in some instances not exceeding \$10 or \$15 per year. In conclusion it should perhaps be explained that this service by bonding companies merely affords a guarantee that a contract will be entered into if a bid is accepted. It does not constitute a bond for the fulfillment of a contract if awarded. The latter is an after consideration and is separate and apart from the preliminary protection exacted by the government.

BIDS FOR MACHINE TOOLS

Washington, Oct. 23.—The United States navy department, through its bureau of supplies and accounts will on Nov. 21 open bids for a number of machine tools and other items of equipment for Pacific coast navy yards. Among the items for which proposals are invited with stipulation for delivery at the Mare Island navy yard, California, are the following: One 5 H. P. wholly inclosed 220 volt, shunt-wound, direct-current motor to drive a 16-in. pulley on countershaft at 400 revolutions per minute; speed of motor not to exceed 1,500 revolutions per minute; one motor and all necessary attachments for converting a 32-in. Lodge & Shipley lathe to direct motor drive; two self-feeding rip saw tables, motor driven; one No. 2 die-sinking machine as made by the Pratt & Whitney Co., Hartford, Conn.; and one surface-grinding machine suitable for surfacing work at least 50 in. long, 14 in. wide and 11½ in. high, and under, complete with countershaft, tight and loose pulleys and all accessories. On the same date bids will be opened for furnishing for the Mare Island yard one double cylinder, double-friction, drum hoisting engine, complete with boiler and all accessories and four independent winch heads.

On Nov. 14 bids will be opened by the navy department for a number of articles of equipment for the League Island navy yard at Philadelphia. These include one magnetic metal separator and dynamo, complete; one self-emptying oil separator; one 4 in. pipe cutting and threading machine, electrically driven, 220 volts, inclosed type motor to cut from 1 to 4 in.; 3 in. hollow hexagon turret lathe; one open side planer, and two turntables for portable railway track. On the same date proposals will be considered for the furnishing of one tenoning machine and one automatic cut-off saw for wood for use at the navy yard at Norfolk, Va.

The stockholders of the Colorado Fuel & Iron Co. have elected the following directors: F. J. Hearne, Edwin Gould, E. T. Jeffery, Winslow S. Pierce, D. C. Beaman, George J. Gould, Benjamin Nicoll, J. H. McClement, Alvin W. Kretch, J. H. Hyde, E. W. Oglebay, Edwin Hawley and E. H. Herri-man. The directors who retired are J. D. Rockefeller Jr., E. Parmelee Prentice, F. T. Gates and Starr J. Murphy. The Gould men who succeed the Rockefeller representatives are Edwin Gould, E. T. Jeffery, Winslow S. Pierce and Alvin W. Kretch. The Rockefeller interest has no representation whatever now upon the board of directors. It is understood, however, that this arrangement is entirely mutual.



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What steps can be taken to stop the present encroaching on the Ohio river? Congress has passed enough laws prohibiting the dumping of refuse over the banks or into the Ohio, to keep the river practically free from such material. Despite these laws, the river grows narrower each year. This is especially true along the upper section. It has been seen where railroads have dumped cinders along their tracks on the river banks to be used apparently as ballast, that instead these cinders were placed over the banks little at a time. Surely this is not worthy a dignified business concern. There has been enough material filled in at places along the river to permit the laying of double tracks—the river having been contracted to that extent. The mills are better situated for such work, being located on the river's banks. Not only railroads and mills are guilty of this violation, but cities, which are benefited by free navigation and damaged by floods, permit their refuse to be thrown into the river.

These encroachments are a menace to the land lying along the river. The regular channel is being narrowed to such an extent as to prevent the free flow of the water. Floods, which formerly passed off in a day or two, now last several days before the river re-

cedes to within its banks. Where we had floods about once in three years, we are now having them two and three times in one year. Navigation also suffers thereby. The banks are such in places as to make it next to impossible to effect landings.

The government is spending large sums toward the improvement of the Ohio, and further encroachments should be stopped. As the material which is thrown into the river proves detrimental to these improvements, unless this practice is entirely prohibited, further improvements are practically a waste of public moneys.

What are known as "Harbor Lines"—lines showing what is considered as part of the river—should be established along its entire length, and no filling permitted beyond those lines. After the lines are established, drastic measures should be adopted to maintain them and to prevent dumping of all kinds. This is a matter for congress to act upon. A continuous appropriation, similar to that providing funds for operating snag boats on the Ohio river, should be made for this purpose. Not only should the establishing and maintaining of such lines be provided for, but the imposing of a heavy fine for any dumping, filling, or for otherwise encroaching on the river should be contained therein.

In establishing harbor lines, the monuments should be so placed as to be easily located by interested parties. To properly maintain them, the work should be in charge of one officer, who should have a competent man, or men, make frequent trips by boat over the river and make special visits to the districts near large cities and manufacturing plants. While an inspector in each of the principal cities on the Ohio has its advantages, frequent visits from the officer in charge, or his assistant, should be made.

FREIGHT SITUATION

It is expected that the ore movement for October will reach 4,000,000 tons. Nearly all of this is contract movement, as there are very few wild vessels to be had. The wild rate on ore has steadily remained at the contract figure, though it would seem that if any shippers desired additional tonnage later the rate would advance. The big shippers are in fairly good shape with their ore movement as a tremendous volume of it was moved by them during the summer months. Dispatch has been poor and can be expected to be poorer so that very few more trips can be counted upon.

The coal rate to Milwaukee has been marked to 55 cents, with few vessels to be had at that figure, and the grain rate has been established at 3½ cents from Duluth, with a likelihood of a further advance. Grain vessels are suffering from delays at Buffalo, some of them having to wait ten days or more.

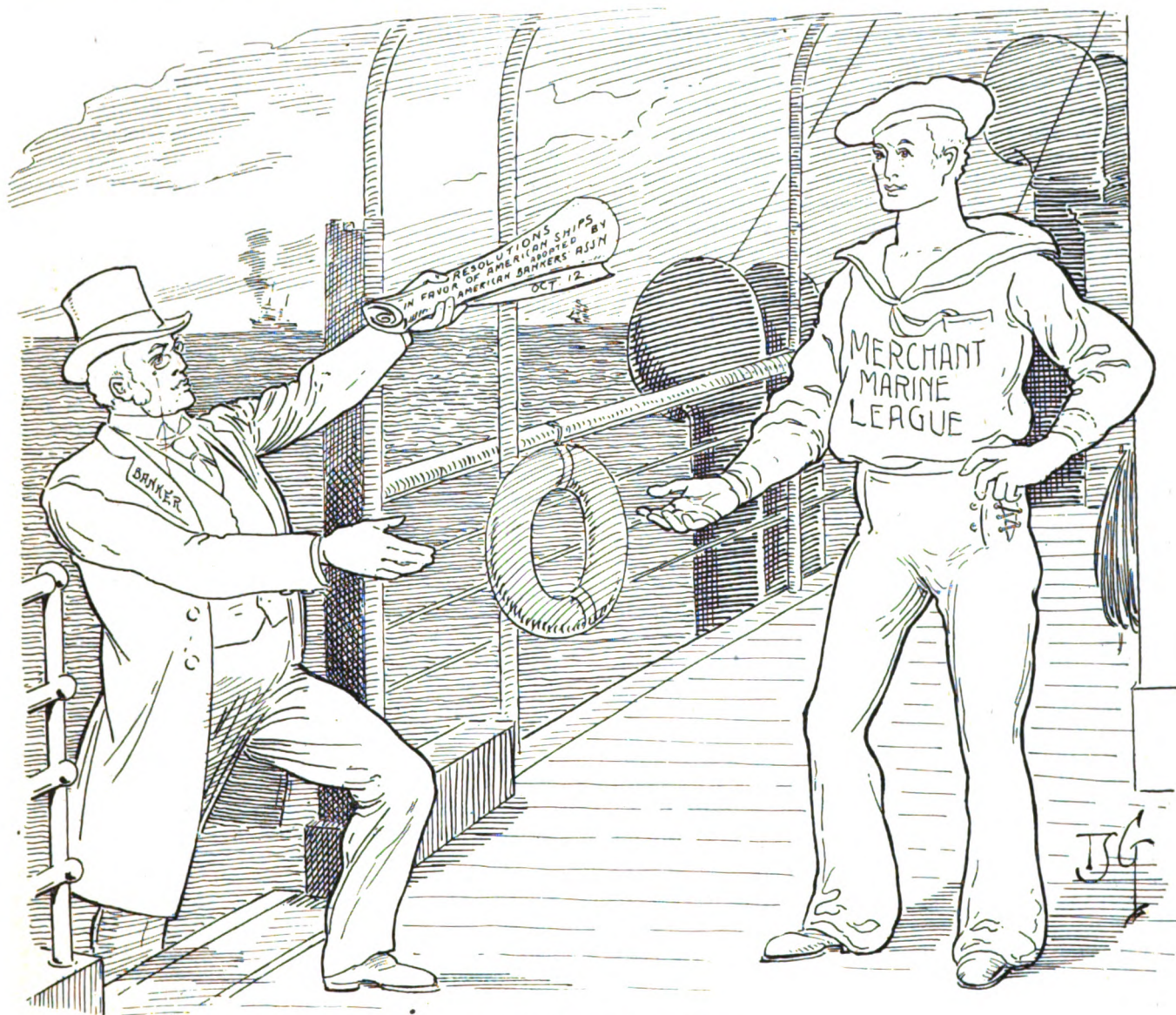
J. S. Winslow & Co., Portland, Me., have contracted with Percy & Small, Bath, Me., for the construction of a large schooner on the same lines as the Ruth Merrill, to be 285 ft. long, 48 ft. beam and 27 ft. deep. The new schooner will probably have six masts.

BREYMAN BROS. DIFFICULTY WITH A CHECK

Washington, Oct. 23.—The amount of red tape to which manufacturers, contractors and other firms in the trade may be called upon to submit with what grace they may in their dealings with the United States government is well illustrated by the difficulties encountered by the dredging firm of Breyman Bros. of Toledo, O., in securing from the war department a claim of \$65,000, which has been held up because of a circumstance which

National Bank of Toledo, but when the paper was sent to Boston for collection the subtreasury refused to honor it in that form. Col. Stanton was requested to certify on the face of the warrant that the paper was the one he had issued, but this the engineer officer declined to do.

Effort was next made to have the treasury department issue a duplicate warrant, but inasmuch as the amount involved was over \$2,500 this could not be done without specific authorization by congress. This would have re-



A NEW FRIEND STEPS ON DECK.

American Bankers' Association (to Merchant Marine League)—"I'm with you!"

while assuredly somewhat unusual might find repetition at any time.

The sum above mentioned is due Breyman Bros. on account of dredging work performed by them near the port of Boston under contract with the United States government. Upon the completion of the work the United States government engineer in Boston, Col. W. S. Stanton, mailed to Breyman Bros. at Toledo his check on the Boston subtreasury for \$65,000, the sum called for by the contract. However, the railroad train bearing the check was wrecked and as a result of the partial destruction of the mail matter on board that portion of the Breyman check which bore the signature of Col. Stanton was burned.

The Toledo firm deposited the damaged warrant in the

quired months of delay, and it was suggested as an alternative that the mutilated warrant be returned to Col. Stanton and that he issue a new one to replace the original. Thus far he has not consented to accept this way out of the difficulty. The matter has now dragged along for months and the dredging contractors have finally been impelled to enlist the services of a lawyer to present the matter before the war department in the hope of finding some solution of the deadlock.

The Panama Canal Commission has annulled the contract awarded J. E. Markel, Omaha, for feeding and caring for the employees of the canal. The reason for this action is that Chief Engineer Stevens has organized a commissary department.

SCOTTISH SHIP BUILDING BOOM

Glasgow, Oct. 10.—As usual improvement in ocean freight rates is carrying its own antidote. A sudden demand for new tonnage has sprung up on the Clyde and owners are showing every disposition to forget their recent experiences of over supply of tonnage. The Glasgow *Herald*, after a special investigation in ship building circles, states there has not for a long time been such a large number of orders for steamers booked by Clyde owners within such a short time as they have received this month. Up to a week ago nothing very unusual had been reported in connection with the industry. Of contracts more than the average number was being placed, and prospects generally were regarded as distinctly encouraging, the trouble over the engineers' wages was passing away, and the strike of patternmakers would, it was hoped, be settled on the terms granted to the engineers. The improvement in trade was not denied by the employers in their negotiations with the men and all over there were prospects of a fairly busy winter. Within the past few days, however, there has been quite a rush of orders, especially for Greenock and Port Glasgow firms, and some yards in these districts must now be booked up a long way ahead. The explanation of the apparently sudden improvement is to be found mainly in the fact that the advance in the prices of material made on Tuesday last was anticipated by intending owners, who took care to "cover" before it took effect.

The placing of the numerous orders is, apart from the immediate cause of the boom of this week, an indication that owners are accepting the signs of improvement in the general shipping trade as sufficient guarantee that they can safely invest in new tonnage. There has been recently an advance in freights in several directions. Indeed, quite a rush for tonnage has set in, principally for Baltic ports, and rates have had a very material advance. From Cardiff as high as 7s 6d per ton has been paid, while from Fifeshire ports up to 5s 3d has been done, the latter an advance of almost 2s. Another market which has shown improvement is that for grain from America to the continent, for which a larger number of "tramp" steamers have been chartered than for a considerable time back, at rates which are considered fairly good. To Black Sea and Mediterranean ports rates have also shown an improvement, while freights from iron ore ports such as Bilbao have hardened up materially. In other directions, however, there is as yet no marked change to report.

The great feature of the new work booked during the month was, according to the *Herald*, extensive orders placed by Messrs. Wm. Burrell & Son, Glasgow. These consist of ten vessels, each of about 7,000 tons capacity, and all in addition to the ten they already have building at Greenock and Port Glasgow yards. The details of their new orders are: The Grangemouth & Greenock Dockyard Co., Greenock, two vessels; Messrs. Wm. Hamilton & Co., Port Glasgow, four vessels; Messrs. Napier & Miller, Yoker (at Old Kilpatrick after the end of the year), two vessels, and Messrs. R. Duncan & Co., and A. Rodger & Co., Port Glasgow, one vessel each.

With the exception of Messrs. Napier & Miller, all the firms named already have work on hand for Messrs. Burrell. The twenty new vessels will aggregate about 140,000 tons carrying capacity. Other orders announced during the month were: Messrs. D. & W. Henderson & Co., Partick, two large steamers for Messrs. Maclay & McIntyre, Glasgow, and a steamer of 7,000 tons carrying capacity for Messrs. Biggart & Fulton, Glasgow; Messrs. A. Rodger & Co., Port Glasgow, a steamer of 6,500 tons

for Messrs. Easton, Greig & Co., Glasgow; Messrs. Barclay, Curle & Co., Whitenich, a steamer of 7,000 tons for the Pacific Steam Navigation Co.; Messrs. Wm. Denny & Bros., Dumbarton, a turbine passenger steamer for the General Steam Navigation Co., London, and a turbine steamer of about 660 tons for the Ostend-Bolougne service; Messrs. Wm. Hamilton & Co., Port Glasgow, a steamer of 8,350 tons deadweight for Messrs. Glen & Co., Glasgow, and two steamers of 5,030 tons dead weight for Messrs. F. C. Strick & Co., London; the Ailsa Ship Building Co., Troon, three steamers for Messrs. Spillers & Bakers, Cardiff; Messrs. Archibald McMillan & Son, Dumbarton, a steamer for Messrs. R. Hughes-Jones & Co., Liverpool; Messrs. Fleming & Ferguson, Paisley, a powerful dredger for Hartlepool harbor commissioners; Messrs. A. & J. Inglis, Pointhouse, a channel steamer for the North British Railway Co.; the Grangemouth & Greenock Dockyard Co., Grangemouth, a paddle steamer for continental owners; and the Caledon Ship Building Co., Dundee, a steamer of about 1,400 tons for the Dublin & Glasgow Steam Packet Co. Altogether twenty-eight vessels, representing about 80,000 tons gross, were reported during the month as having been placed.

There were launched during the month thirty-nine vessels of 49,256 tons, as compared with thirty vessels of 62,042 tons last month and thirty-one vessels of 44,612 tons in September of last year. The total for the nine months is 245 vessels of 393,232 tons. This is 81,007 tons more than the nine months' total of last year. The district figures for the year up to date are:

	Clyde		Forth		Tay		Dee	
	Ves.	Tons.	Ves.	Tons.	Ves.	Tons.	Ves.	Tons.
January ...	8	20,202	1	1,030	1	400	1	135
February ..	12	42,499	2	510	1	4,300	..	....
March	23	42,714	1	300	2	2,336	3	290
April 25	35,065	6	4,840	1	520	4	385	
May 33	54,036	2	958	4	340	1	175	
June 22	39,620	2	1,220	3	6,200	2	1,185	
July 11	21,306	1	75	..	....	4	743	
August 23	58,055	4	1,185	1	2,300	2	502	
September .33	45,546	..	....	1	680	5	3,030	
	190	359,643	19	10,118	14	17,076	22	6,445

How the aggregates stand compared with former years is shown in the following table:

	September Tons.	9 Months. Tons.
1905.....	49,256	393,282
1904.....	44,612	312,275
1903.....	31,913	331,254
1902.....	57,862	396,570
1901.....	40,680	395,426
1900.....	35,325	356,685

Clyde builders launched during the month thirty-three vessels of 45,546 tons, as compared with twenty-three vessels of 58,055 tons last month and twenty-seven of 43,203 tons in September of last year. The total for the nine months is 359,643 tons. This is 66,072 tons more than that of last year, and only 2,644 tons short of the nine months' total in 1902, which produced the largest tonnage ever built on the Clyde within one year. It is, therefore, practically certain that 1905 will create a new record by surpassing the figures for 1902. The following are the Clyde figures since 1900:

	September Tons.	9 Months. Tons.
1905.....	45,546	359,643
1904.....	43,203	293,571
1903.....	27,223	299,940
1902.....	53,045	362,287
1901.....	38,920	369,046
1900.....	33,975	327,925

LIVERPOOL SHIPPING LETTER

Liverpool, Oct. 16.—The death of Lord Inverclyde, the valued chairman of the Cunard line, is a matter of very sincere and widespread regret throughout Great Britain, and Americans who have come to know him are sure to feel that a very able man has been lost to British shipping. Six weeks previous to his death the deceased baron was attacked with pleurisy, which later developed into pneumonia, and despite all that the best medical advice could do, he passed away on Sunday, Sept. 8, at the early age of 44 years, being born on Sept. 17, 1861. He belonged to a family which for four generations has held an honored place in the city of Glasgow. His grandfather was one of the founders of the Cunard company, and also the pioneer of the direct sea service between Scotland and Ireland, and of the first line of steamships between Glasgow and the highlands and islands of Scotland. The second Lord Inverclyde, whose death has just taken place, followed the traditions of the family. After receiving a liberal education and traveling a good deal, he entered the office of the Cunard company, where, passing through the principal departments, he acquired a thorough and exact knowledge of the ramifications of the business. In 1902 he succeeded Mr. David Jardine in the chairmanship of the Cunard company, and in this position he remained until his death, guiding the company in many important negotiations. It is only too well known, at all events in Great Britain how he successfully combated the united efforts of the German lines and the International Mercantile Marine Co. during the recent Atlantic rate war, and finally, against great odds, retained the all-British character of his own line. In the negotiations with the British government about the two subsidized express turbine mail steamers now building at Clydebank and on the Tyne, he took a leading part, and helped to organize the turbine commission, which investigated the feasibility of applying turbines to the proposed liners, and decided in favor of the new form of marine engine. It can truly be said that in the four years of his chairmanship of the Cunard line he has accomplished almost a lifetime's work. During this period the Cunard fleets have been greatly strengthened, the Cunard-Hungarian-American service has been established, the Carpathia and Caronia have demonstrated their popularity with the traveling public; the vessels of the passenger fleets have been fitted with wireless telegraphy, and the daily ocean newspaper has been inaugurated. To crown all, the steam turbine has been adopted by the Cunard company for the Carmania, and for the two 25-knot fast mail steamers now building. During this development of policy, Lord Inverclyde did not lose sight of the interesting inner work performed by the Cunard staffs. The Cunard employes will ever hold in kindly remembrance the deep interest which Lord Inverclyde took in the formation of a superannuation fund of an exceptionally liberal character, which enables them to enjoy the autumn of life without fear of that "chill penury" which haunts the memory of many a worker when his period of utility draws to a close. Although married in 1880, the deceased baron had no family, and the title therefore descends to his younger brother, the Hon. James Cleland Burns, who has himself already made a reputation as a successful president of the Chamber of Shipping of the United Kingdom, and is spoken of as likely to succeed his deceased brother in the chairmanship of the Cunard company.

With the return of Mr. J. Bruce Ismay, the president of the International Mercantile Marine Co. from his recent business visit to the United States this week, the announcement is made that he has secured the renewal of the mail contract to the American line between New York and Southampton, the principal condition attaching to which is that the mail vessels must be built and officered by American citizens. The compensation is said to have been fixed

at the rate of \$4 per mile. The American line, it may be pointed out, has a fleet of twenty-one steamers, their total tonnage being 170,943 tons. The years of 1888 and 1889 witnessed the enterprising appearance of the City of New York and City of Paris, which vessels marked an advance in size as well as the adoption of twin screws. In 1893 the Inman and International, as the line was then called, extended into the American line the mail steamers exchanging Liverpool for Southampton, their names being all shortened to the bare titles of cities. The New York and Paris, since re-named Philadelphia, were under a special act of congress naturalized into the United States register, and the St. Louis and St. Paul in 1895 emanated from the busy yards at Philadelphia of Messrs. Cramp & Sons. Weekly New York mail lines are run to and from Antwerp and also Southampton, the latter departures calling at Cherbourg on the west-bound voyage, and at Plymouth and Cherbourg on the east-bound voyage. The steamers running between Antwerp and New York call at Dover each way. Philadelphia passenger and freight lines are still maintained to and from Liverpool, as well as Antwerp. The latest additions to the fleet include several steamers of over 12,000 tons. The International Mercantile Marine Co. controls the American and Red Star lines, together with the Atlantic Transport, Dominion, Leyland and White Star lines, which represent a total of 126 steamers and 991,061 tons. In the natural order of things it is believed that the American line will ultimately place new steamers of great size and advanced speed on its New York and Southampton mail service.

The report of Lloyds Register of Shipping for the year ended June 30, 1905, dealing with the operations of the society during the year is interesting from the light it throws upon the advances which have been made in ship building and marine engineering, as well as upon the present condition of the shipping industry in general. The gradual improvement which has taken place in freights has no doubt contributed to the substantial increase in the aggregate tonnage of the vessels which have been built under survey during the period in question for classification in Lloyds Register Book, the total being 1,200,827. As compared with the figures for the preceding twelve months, the present return shows an increase of about 120,000 tons, and it will be interesting to quote the figures representing the new tonnage classed by the society during recent years:

	Steam.	Sail.	Total.
1895-6	860,930	70,085	931,015
1896-7	798,488	62,120	860,617
1897-8	827,132	24,403	851,595
1898-9	1,302,320	20,357	1,322,686
1899-1900	1,236,831	18,908	1,255,739
1900-1	1,328,395	26,916	1,355,311
1901-2	1,381,750	43,666	1,425,416
1902-3	1,182,205	68,155	1,250,420
1903-4	1,051,000	27,085	1,079,045
1904-5	1,181,769	11,058	1,200,827

The fact that while the tonnage mentioned is an increase of about 120,000 tons over the corresponding figures for the previous year, the number of vessels represented is actually smaller, draws attention to the continued tendency towards the building of still larger vessels. Thus there are included in this total no fewer than twenty-four steamers of over 5,000 tons each, amongst which the largest are two of over 20,000 tons each, one of over 19,000 tons, and one of over 13,000 tons, built for the Great Northern Steamship Co., the Cunard Steamship Co., Ltd. and the Pacific Mail Steamship Co. respectively.

Among the types of vessels classed by Lloyds Register during the year may be mentioned bulk-oil carriers, steamers to burn liquid fuel, trunk-deck and turret-deck steamers, and the now almost familiar turbine steamers.

While the declaration of peace in the far east is probably

too recent to have affected the output of tonnage completed during the period under review, intelligent anticipation of this event is, perhaps, partly responsible for the fact that on the 30th of June last the total tonnage building under the inspection of the society's surveyors reached the very large total of 1,123,678 tons, as compared with 901,844 tons, twelve months previously, an increase of nearly 25 percent. Included in this total are nine steamers to be fitted with turbine engines, among them being the two large express steamers now being built for the Cunard Steamship Co., Ltd., under agreement with the British government.

The rapid growth of trade in refrigerated cargoes is reflected in the increased number of vessels employed therein, the appliances of which have been submitted each voyage to the inspection of the society's surveyors, with a view to obtaining the certificates which are found to be of great value to those engaged in this trade.

The aggregate measurement of the vessels at present classed in the society's register book amounts to no less than 18,250,000 tons.

In connection with the question of load line, it will be of interest to ship owners to learn that the committee of Lloyds Register have been giving much attention to the important subject of the depth of loading allowed by the British freeboard regulations. As the result of their deliberations, the committee have arrived at the conclusion that the freeboard tables can with safety be amended to admit of deeper loading for certain types of vessels, and they have laid their views on the subject before the board of trade.

The use of the Prince of Wales pier at Dover on Thursday by the gigantic new liner *Amerika*, 23,000 tons, on her maiden trip to New York marks an era in the development of Dover as a port of call for ocean traffic. It would be well here to at once correct the impression that has got abroad that the *Amerika* is the largest ship afloat. This distinction still rests with the White Star liner *Baltic*, which according to Lloyds Register, has a gross tonnage of 23,876 tons, her dimensions being: length, 709.2 ft.; breadth, 75.6 ft., and depth, 52.6 ft. The gross tonnage of the *Amerika* as given by Lloyds is 23,000 tons; length, 670.5 ft.; breadth, 74.6 ft., and depth, 48.4 ft. Nevertheless the *Amerika* is a ship of enormous size. With her five decks she towered very high above the pier, and a first-class battleship or a liner like the *Deutschland* looks small in comparison to her. The *Amerika* is magnificently fitted up, her great size giving an opportunity of providing spacious accommodation and extensive deck promenades, of which the designers, the Belfast firm of Messrs. Harland & Wolff, have made the most. How luxurious ocean travel has become is shown by some of the innovations on this ship, such as a first-class restaurant, where meals may be ordered a la carte; Turkish and electric baths, a gymnasium, and a day nursery for children. Admirable copies of art masterpieces adorn the walls. There are passenger lifts between the five decks. The *Amerika* accommodates about 3,400 people, and she has a telephone exchange connecting all the principal cabins. On her present trip with her crew she has nearly 4,000 souls aboard. The *Amerika* in addition to her passenger accommodations will carry 15,000 tons of goods, equal to the carrying capacity of ten miles of railway trucks. Her displacement, with cargo, is nearly 60,000 tons.

The traffic receipts of the Suez Canal Co., which, owing to the sinking of the *Chatham* had marked a sensible diminution in the last week of September and the first three or four days in October, have already commenced to improve from the ships that have entered the canal to take advantage of the resumption of the service. The returns for the whole month of September show a sum of 8,090,000 fr., against 9,490,000 fr. in the corresponding month of 1904, and the nine months 80,248,358 fr. against 84,058,480 fr. last year. The first

two days of October produced only 50,000 fr. and 70,000 fr.; the following two days 100,000 fr. and 120,000 fr.; on the 5th the receipts made a rebound to 1,200,000 fr., followed by 410,000 fr. on the 6th. The deficit in the six days due to the obstruction was only 380,000 fr., or 1,050,000 fr., against 2,320,000 fr. last year.

Sir Charles Mark Palmer, M. P., presiding at the Newcastle Chamber of Commerce on Oct. 13, said, as a director of the Suez canal he could say that greater demands would be made upon it, and it would be a question whether the canal would be able to meet all the demands upon it. Now that ships were becoming so very large, it would be a question whether it would not be cheaper to send them round by the cape instead of going through the canal.

The following interesting statement of the tonnage entering and leaving the port of Hamburg during the year 1904 has been supplied by an esteemed correspondent:

SEAGOING VESSELS ARRIVING IN HAMBURG IN 1904.

	Number.	Reg. Tons.
From German ports (including Heligoland)	5,531	929,260
From Great Britain (colliers).....	1,617	1,235,619
From Great Britain (others).....	2,364	1,580,792
From other European ports.....	3,674	1,819,646
From America	1,056	2,702,816
From Africa	273	463,815
From Asia and Australia.....	328	878,846
Total	14,843	9,610,794

SEAGOING VESSELS DEPARTED FROM HAMBURG IN 1894.

	Number.	Reg. Tons.
To German ports (including Heligoland)	4,979	939,804
To Great Britain and Ireland.....	4,573	3,848,380
To other Continental ports.....	3,927	1,490,198
To America	750	2,082,153
To Africa	334	670,631
To Asia and Australia.....	253	681,313
Total	14,816	9,610,479

This week the American consul in Liverpool (the Hon. J. L. Griffiths) has received full particulars of the floating exhibition, which is now being organized by the manufacturers of the United States, to visit the principal centers of the world. It appears that a syndicate of manufacturers has been formed and plans laid for chartering a suitable steamer for a world's tour, having for its sole object the promotion and extension of American commerce. The scheme includes the charter of a vessel of about 7,000 tons, and American manufacturers, planters and other exporters are being allotted space for the display of samples or specimens of their products, the list including foodstuffs, textiles, agricultural implements, vehicles, iron and steel goods, household requirements, etc. Thus the steamship will be a moving exhibition of what America can provide and what she wants to sell. The promoters of this novel scheme assert that all indications point to America having to rely more in the next decade on foreign trade than has hitherto been necessary owing to the increased production and the proportionate decreased capacity of the domestic trade. In this unique voyage round the world, the ship is to be fitted with first-class accommodation for the representatives of manufacturers who will accompany the exhibits to interview buyers and arrange local agencies wherever trade can be established. A distinct novelty in connection with this trip will be the presence on board of persons competent to give instructions to the traders' representatives, who may so desire it, in the German, Spanish and French languages. The voyage is estimated to occupy 15 months and to cover a steaming distance of 60,000 miles. The floating exhibition is planned to pay visits, each of several days' duration, to

75 ports in 46 different countries. It was originally intended to commence the voyage next January, but it has been found desirable to start later in the year, and the ship is booked to leave New York at the end of next March. The proposed itinerary gives Glasgow as the first call, followed by visits to Dublin, Liverpool and London, thence to Stockholm and St. Petersburg, the ports of Denmark, Germany, France, Spain, the chief Mediterranean and Black Sea ports, through the Suez canal to India, China, Japan, and the Far East generally, on to Australia, and New Zealand, finishing the tour with visits to the South American and West Indies ports. Owing to the great additional distance it would be necessary to cover to include a visit to the Cape, South Africa has been left out of the program. The American consul at Liverpool, as at other places on the itinerary, has been provided with detailed information, for the benefit of merchants, traders, etc.

OVERLOADING VESSELS

Editor *Marine Review*: I think most men writing in Mr. Thos. Donnelly's place in the *Review* last week would have said a good deal more than he did. Mr. Donnelly is well within the truth when he says the Bannockburn was a stronger ship than any of even much larger size built on the lakes and for lake trade. In common with all ships built to her classification she would not even be considered profitable in the American lake trade.

The events of the past few days add weight to the reference to overloading. It is probable that without exception every one of the vessels lost last week was overloaded. I have myself seen within a few days a steamer of the same class as the lost J. S. Fay, though of larger size, built originally for a maximum draught of about 15 ft. loaded to 19 ft. 6 in. with iron ore, leaving a free-board, rail included, of about 2½ ft.

There is nothing unusual, unfortunately, in this sight, it can be seen in the rivers any day. A wooden ship of the older type, with her low flat counter loaded away under water is already in shape for breaking in two. She is all displacement at the ends and no load.

The treatment that some of our modern steel steamers get at the hands of their officers in loading and at the unloading docks from the machines is not any better. I have seen a modern 7,000 ton steel steamer given 2,000 tons in her after hold without a pound forward or amidships. No sea strain the ship is ever likely to encounter begins to compare with such abuse. I have seen the hold stringers, and beams and stanchions battered out of all resemblance by the cruel treatment of the unloaders. I have seen stanchions knocked entirely adrift from their fastenings and they had been in that condition for months. Hold stringers and stanchions are either necessary or they are not. If they are necessary then in what condition is a ship to go to sea with them as described? I have seen tank tops dented and buckled like the waves of the sea, stiffeners and all. What kind of logic is it that insists on certain forms of construction and weights of material and quality of workmanship before the ship is taken over from her builders and then allows of operating in a condition that is a hundred times worse than the worst work of the worst ship builder?

It is probably true that the modern ship will never be overloaded in so far as draught is concerned, but she can be subjected to worse treatment and the results will be even more certain. There are steel ships afloat on the lakes today which are in no better shape to stand a bit of nasty weather with their broken stanchions and bent and twisted stringers and distorted tank tops than

the poorest of the old overloaded wooden tonnage and their sudden disappearance would be no mysterious act of Providence.

BYSTANDER.

Cleveland, Oct. 23, 1905.

CHICAGO GRAIN REPORT

Chicago, Oct. 24.—Light run of shipping during past week though rates were held steadily at 2¼ cents corn for Lake Erie and Bay ports and at about 6 cents through to Montreal. The aggregate lake movement falling short of the railroads' hauling for the same period by some 1,000,000 bu. practically explains the situation. Vessels have been offered with fair regularity despite the known congestion at Buffalo and shippers agree that the 2¼ cents is entirely satisfactory were it not for the impediment to their outlet at the other end. Just so long that railroads continue holding up immense quantities of grain at the eastern lake terminals while occupying their capacity to an abnormal degree from Chicago and surrounding territory, it is difficult to figure any reasonable relief either to the local shipper or lake carrier. Incidentally the business of northwestern grain interests is opposed in equally serious manner.

Shipping of the past week is distributed about as follows: Via all rail lines, of flour, 89,227 bbls.; wheat, 171,224 bu.; corn, 746,293 bu., and oats, 1,505,525. Via lake to Buffalo and other American points, of flour, 114,600 bbls.; wheat 90,000 bu.; corn, 906,000 bu., and oats, 75,000 bu. And via lake to Canada points, of corn, 248,600 bu.

Lake and Rail Shipments:

	This week.	Last week.	Same week last year.
Wheat	261,224	142,510	860,732
Corn	1,901,833	1,368,503	1,073,333
Oats	1,580,525	2,332,734	1,200,254
Rye	33,850	23,857	41,420
Barley	304,914	185,932	248,649
	4,142,346	4,053,536	3,424,388
Flour	203,907 (bbls.)	268,566	130,069
		Since Jan. 1, 1905.	Same time last year.
Wheat		10,703,582	13,295,278
Corn		79,471,402	62,188,419
Oats		47,942,441	38,327,894
Rye		940,009	1,037,538
Barley		3,875,037	3,824,174
		142,932,561	118,673,303
Flour		5,512,890 (bbls.)	5,947,602

Stocks of Grain in Elevators:

	This week.	Last week.	Same week last year.
Wheat	6,604,000	5,843,000	4,503,000
Corn	1,825,000	2,788,000	2,646,000
Oats	12,712,000	11,647,000	10,009,000
Rye	351,000	307,000	694,000
Barley	150,714	390,000	221,000
	21,642,714	20,975,000	18,073,000

It has been decided this week by the navy department to send the new floating drydock built by the Maryland Steel Co. to Cavite this winter, instead of waiting until next fall. The dock will leave its present position off Solomon's island, about Dec. 1 or 15, for Cavite by the way of the Suez canal. It will be towed by the colliers Caesar, Brutus and Glacier. It is estimated that the trip to Cavite will take about four months.

STEAMER TURBINES

Sir Charles McLaren, Bart., M. P., contributes to the *London Times* engineering supplement an article on marine turbine engine building, which is one of a series on "The Financial Aspects of Engineering and Some Allied Industries." The article refers to the early experiments with Hon. Charles Parsons' invention, and says that though Newcastle has the honor of being the home of its origin it is the Clyde that has taken the leading place in the building of turbine steamers and in the construction of the turbines by which they are propelled. The *Turbinia* was the first vessel of the class to be built. It was followed by the torpedo craft *Viper* and *Cobra*, and then by the *King Edward*, designed by Capt. John Williamson, for passenger traffic on the Firth of Clyde, built four years ago by the Dennys at their Dumbarton yard. The same year (the following year) they constructed the *Queen Alexandra* for the same trade. The success of these craft brought an order from the South-eastern & Chatham railway for The *Queen*, now on service between Dover and Calais. Up to the present six turbine steamers have been built for the channel service launched from the Dumbarton yard, as well as two launched at Barrow and on the Tyne for the Irish trade. Four others are in hand for the Great Western railway and the London, Brighton & South Coast Railway Co. Of these boats three are being built on the Clyde.

Last year seven turbine steamers in all were launched by the Dumbarton firm; one of these vessels, a passenger and cargo steamer, the prototype of its kind, was built for the Union Steamship Co. of New Zealand. She was the first large vessel fitted with this class of engine to make a long voyage, and her remarkable outward passage to New Zealand last autumn proved the capabilities and reliability of the turbine for seagoing ships. Four of these vessels were steamers for the British India company's service. They all have a comparatively high speed—not less than 18 knots, and sometimes more. The engines, however, for all these were not entirely built on the Clyde. The turbines of the last two only of those launched in 1904 were constructed at Dumbarton. This year the firm have launched and completed the channel steamers *Onward* and *Invicta*, which are now successfully running, the former on the Folkestone and Boulogne and the latter on the Dover and Calais service. The *Invicta*'s engines were built by the same firm, but those for the *Onward* were given to the Tyne. The *Onward* has recently done the 28 miles from pierhead to pierhead between Folkestone and Boulogne on a favorable tide in 65 minutes under ordinary conditions, and is doing them daily under 70 minutes. She had previously made on 66 trips between Dover and Calais the average speed of 56 minutes 50 seconds. Another vessel of this class, the *Viking*, built by Sir W. G. Armstrong, Whitworth & Co., Ltd., for the Isle of Man Steam Packet Co., and guaranteed to do 22 knots, has maintained an average of 23½ knots and at times touched 24 knots.

Another important stage in the evolution of these vessels was reached when two large Atlantic liners for the Allan Line company's service to Canada were launched, the *Virginian*, by Stephen & Sons, of Linthouse, and the *Victorian*, by Workman, Clark & Co., of Belfast. Both these vessels have reached their contract speed, and the former has made the record passage from Glasgow to Montreal by Cape Race of six days three hours, at an average speed of 17.05 knots. She has also made a run from Lough Foyle to Belle Isle across the Atlantic in four days two and a half hours. That the success of these boats has now placed the turbine engine beyond

the position of experiment, and has secured for it the very highest position in marine engine building, is to be seen from the orders now in hand on the Clyde and elsewhere for still more important vessels fitted with engines of this type. It has been estimated that in this country altogether twenty-eight turbine vessels have been constructed in addition to those now being built. Of those actually afloat the Clyde is responsible for fifteen, the engines for twelve of which were actually built by Mr. Parsons' old firm. Of the vessels in hand, the Clyde firms have nine amongst them, and in every case but two the engines that will propel them are being built by the firm that is constructing the hull. The Clyde firms engaged in this class of work are William Denny & Bros., of Dumbarton; John Brown & Co., Ltd., of Clydebank; A. J. Inglis, of Partick, and the Fairfield Ship Building Co., Ltd., of Govan. Considering the leading part which the Dumbarton firm took in pioneering the turbine, their share of the present orders is less than might have been expected, but they have at present two steamers in hand—another large vessel for the Union Steamship Co. of New Zealand, and a still larger one for the eastern trade. John Brown & Co., Ltd., have two turbine channel steamers in hand for the Great Western Railway Co. The Fairfield company is now building two more channel steamers, one for the London, Brighton & South Coast railway, and the other for the Ardrossan and Belfast service; and last year they completed a turbine yacht for a private owner. A. & J. Inglis have the contract for refitting with these engines the large steam yacht *Mahroussa* for the khedive of Egypt. Her machinery is to have sufficient horse power to drive her 18 knots in place of her old set of paddle engines. The same firm has secured the order for the construction of a new turbine yacht for his majesty the king.

John Brown & Co., Ltd., have, however, taken up the construction of marine turbine engines on a scale hitherto unapproached in magnitude. They launched early in this year at Clydebank the *Carmania*—a sister vessel to the *Caronia*, now running in the Liverpool and New York service—for the Cunard company. As stated in a previous article, these are the largest vessels ever built in Great Britain. While the *Caronia* was fitted with reciprocating engines of the highest class, developing 23,000 H. P. on trials, the *Carmania*, which is exactly similar in other respects, is being fitted with turbine engines with the intention of driving her at the same rate of speed. The outcome of her trials will naturally be watched by the engineering world with great interest, as, being matched with a sister vessel of another type, the results as to coal consumption, speed, and economical running can be compared on a very large scale. The Clydebank firm has also the contract for building and equipping with turbine engines one of the two leviathan Cunarders, which, subsidized by the admiralty as available cruisers in the time of war, are also being financed by public money. These vessels will be the largest in the world. Their contract minimum average ocean speed is from 24 to 25 knots in moderate weather. In accordance with the recommendation of a special committee on which the technical departments of the admiralty were represented the engines, which are to develop 65,000 H. P., are to be applied to four shafts, each carrying a single screw. Here again the turbine will be subjected to a most important test, as the two vessels now being built will run under conditions of speed, size, coal consumption and passenger carrying capacity never hitherto fulfilled by cross-Atlantic steamers fitted with reciprocating engines, and will represent a greater step in marine steam propulsion than all the progress made for more than a generation in the

development of the old type. In view of the difficult problem of constructing turbines of this enormous power and a vessel embodying such exceptional conditions, John Brown & Co., Ltd., conducted a long series of trials with an experimental turbine in order to ascertain the best details in the design actually to be adopted, and in order to determine the question of economy in steam in large engines of this type. The Carmania engines, which are fitted with no less than 1,200,000 blades, are the largest so far built, but they will be considerably exceeded in size of turbine as well, of course, in indicated horse power by those now being constructed for the 65,000 H. P. ship. Experiments and calculations have, however, made it clear that, as compared with the three sets of reciprocating engines which would have been required for a vessel of this power, the turbine principle obviates the risk of serious vibration, reduces the diameter of the propeller shafts, whose increased rapidity of revolution makes the adoption of a smaller but more efficient screw possible, and dispenses with crank shafts and forgings of a very expensive kind, whose construction would have presented the greatest practical difficulties.

The trials of all the turbine steamers which have already been launched have been carefully conducted and closely watched, and in most cases efforts have been made to ascertain the economy of coal consumption. The results point to the fact that in the case of fast channel steamers coal at the higher speeds was relatively smaller than that with ordinary engines. In the smaller classes, however, of turbine steamers, such as yachts and destroyers and vessels fitted with single turbine engines, the new motor does not show any marked superiority in this respect. It is seen to its highest advantage in the cruising turbine arranged in series, and in this form may be said to give an increase of power equivalent to the addition of a fourth high-pressure cylinder in an ordinary engine. But for simplicity of design and reliability in running every kind of turbine has proved its value. The turbine has fewer working parts and shows less wear and tear than the reciprocating engine; and the great advantage of absence of vibration will, if it had no other merits, always afford a justification for its adoption in high speed vessels. It is established, however, that as a mere coal-saving appliance its value is greatest when it is run steadily with a full load, and that in these respects it compares most favorably with engines of the reciprocating type. For mercantile vessels, which run at a uniform speed, it presents unquestioned advantages which are not wholly shared by cruisers or battleships. These, though constructed to steam at 18 or 21 knots, rarely in ordinary usage exceed a speed of 12 knots. They cannot, therefore, at these reduced speeds expect to gain very much in respect of coal consumption.

Two important series of trials were carried out last year by the admiralty with the view of comparing the speed performances of vessels with both classes of engines. The Amethyst, cruiser, is fitted with three very powerful turbine engines of 12,000 H. P. She is the last design for which Sir William White was responsible before he ceased to be chief constructor of the navy. The trials of this cruiser and also the trials of the Midland Railway company's channel steamers, showed a marked similarity in the main facts of relative speed and economy, though the class of vessels in each set of trials differed widely in other conditions. Two of the Midland Railway company's steamers, the Antrim and the Donegal, had reciprocating engines of the highest class. The other two, the Londonderry and the Manxman, were fitted with turbines. The four vessels were designed for a speed of 21 knots. With the exception of a little extra beam in the Manxman they were all sister

vessels. The Manxman made over 23 knots and the Londonderry over 22 knots on trial. Neither of the vessels with reciprocating engines made as much as 22 knots. In economy of coal consumption the four vessels practically showed no difference in consumption at the lower speeds but at the designed speed of 21 knots there was a marked superiority in this respect in the turbine boats. Similar deductions have been made from the trials of the Amethyst with the Sapphire and her sister cruisers fitted with reciprocating engines, which established beyond all question the advantages of the turbine fitted boat.

Sir Charles McLaren's article concludes:

There can be little doubt that the admiralty will adopt this system though possibly in new improved types, in future construction. The immediate result of these trials is shown by their decision to take another big stride forward and to lay down their newest and largest battleship of 18,000 tons with turbine engines of 23,000 H. P. These engines are to be built at Barrow, but it is understood that the turbines themselves will be constructed by the Hon. C. A. Parsons, on the Tyne. No doubt, however, all the large firms will now take out licenses under the Parsons patents. Twelve new coastal destroyers have also been ordered by the admiralty with turbine engines, but none of these have been allotted to Clyde builders. Possibly there is some truth in the current rumor that, in future distributions of admiralty orders, firms capable of building battleships and cruisers will be confined to that class of work, and firms which have hitherto built nothing heavier than a destroyer will alone be invited to tender for these boats.

MASTERS AND SAILORS NOT COMMON SERVANTS

An important decision has just been announced by the supreme court of the state of Washington, in a case that will be of much interest and importance to general shipping circles. In this decision the court held that the master of an ocean-going vessel, and an ordinary seaman, "are not fellow servants," and the owners of the vessel are responsible for injuries occurring to seamen through the negligence of the master of the vessel.

P. J. Woods, a seaman, was injured on board the steamship Tampico which was bound from Seattle to the Hawaiian Islands. Woods was ordered by the master to clean a sheet that had fouled in the shackles. Woods claims that while at work the master, without any warning whatever to him, ordered the course of the vessel changed, which resulted in a large wave coming on board and washing him clear across the deck. His leg was broken, and he brought suit for damages. Woods obtained a judgment for \$2,000, which is affirmed by this decision rendered by the supreme court.

The steamer Alameda was pulled off the reef at Fort Point, San Francisco bay, on Friday afternoon, Oct. 6, and later taken to her dock, though the water was coming into the hold at the rate of 1,000 gallons per minute. It was easily controlled by pumps, however. When the steamer was placed in drydock at Hunter's Point, it was found that the sharp points of the rocks had made about thirty holes in the hull. There was quite a large hole in the port bow; also a long crack just forward amidships. The most serious damage was under the port after boiler. The salving of the Alameda will save the underwriters a considerable sum of money, as she was insured for \$262,500. Credit for salving her is generally given to Capt. A. F. Pillsbury, representing the underwriters, and he was given an informal reception when the Alameda reached dock.

A TERRIBLE GALE

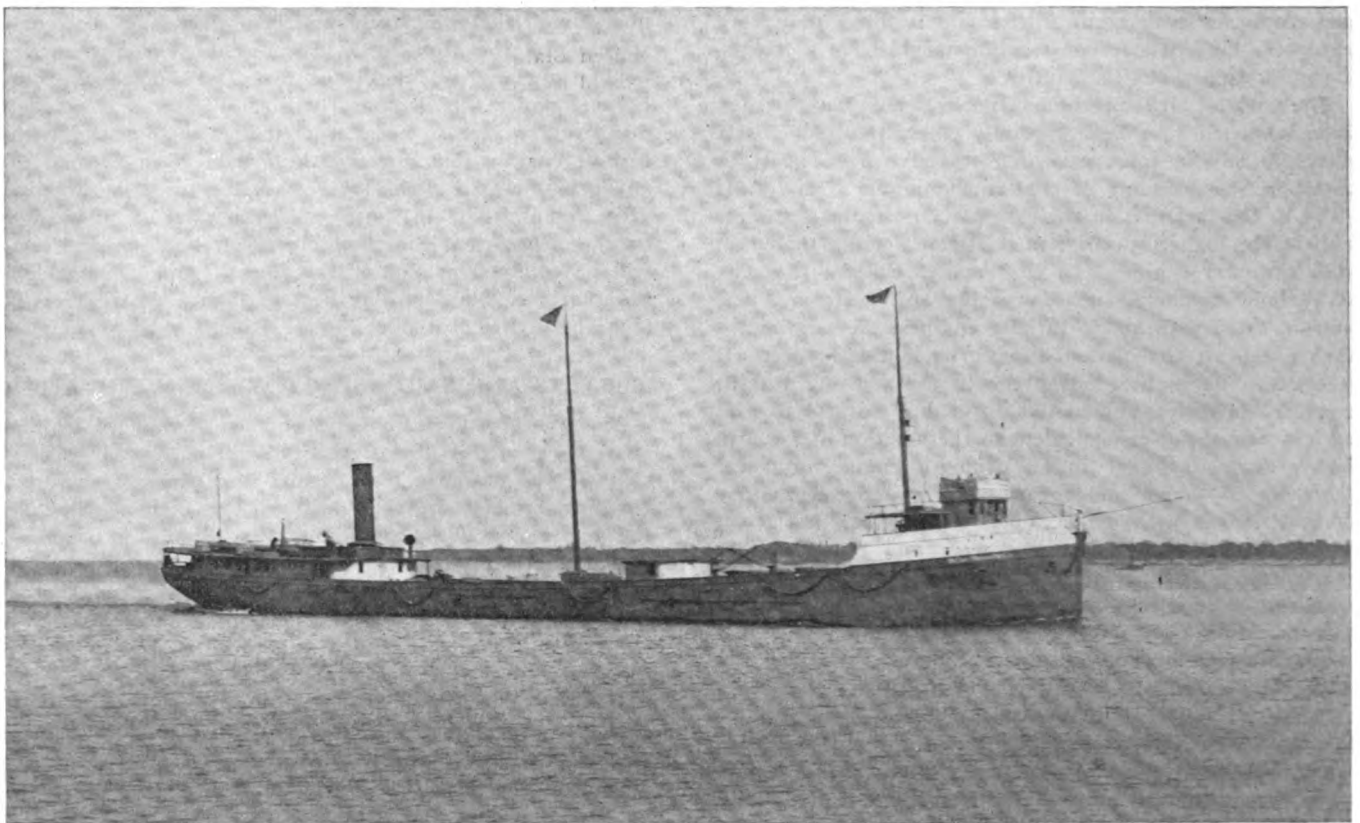
In number of vessels and lives lost, though not in tonnage and value, the storm which broke out on Thursday of last week which embraced the whole body of the great lakes, was one of the most disastrous that has visited the lake region in many years. The storm was one of exceptional violence and played havoc with the wooden vessels. The vessels which were totally destroyed were as follows:

Lake Erie: Schooner Commerce, owned by George H. Flood, of Chicago, 141 ft. long, built in 1857; steamer Sara E. Sheldon, owned by M. A. Bradley, Cleveland, 184 ft. long, built in 1872; schooner Tasmania, owned by James Corrigan, Cleveland, 221 ft. long, built in 1871; schooner Yukon, owned by Gilchrist Transportation Co., Cleveland, 270 ft. long, built in 1893.

Lake Huron: Steamer Kaliyuga, owned by Cleveland Cliffs Iron Co.; schooner Mautenec, owned by T. F. Mad-

In addition to these a great many vessels were seriously damaged, having narrow escapes from total destruction. The steamer Siberia, of the Gilchrist fleet, had a narrow escape from foundering in Lake Erie. The Siberia, which was bound to Buffalo with a cargo of barley, had 11 ft. of water in her hold when she was sighted by the steamer Wade. The Siberia's steam pumps were broken by the severe pounding and she was sinking fast when the Wade got alongside and dragged her on the Long Point, where she settled in 19 ft. of water. Capt. Philip Smith of the Wade took off the crew and landed them at Buffalo.

By heroic work on the part of the tug Kunkel Bros. and the Cleveland life saving service, the crew of the Sheldon was saved, with the exception of two men who had jumped overboard when the steamer struck and had been carried out to sea. Notwithstanding the violence of the waves, the tug maneuvered about the Sheldon so as to permit the five members of the crew to jump upon



THE STEAMER KALIYUGA, PROBABLY LOST WITH ALL ON BOARD IN LAKE HURON.

den, Bay City, 201 ft. long, built in 1875; schooner Minnedosa, owned by the Montreal Transportation Co., of Montreal, length 245 ft., built in 1890; steamer Joseph S. Fay, owned by M. A. Bradley, Cleveland, length 216 ft., built in 1871; schooner D. P. Rhodes, owned by M. A. Bradley, Cleveland, length 217 ft., built in 1871.

Lake Michigan: Schooner J. V. Jones, owned by Nathan Allan, Kenosha, Wis., 125 ft. long, built in 1875; schooner Vega, owned by George Jorgeson, Milwaukee, 118 ft. long, built in 1856; schooner Cape Lyons, owned by Herman Henrickson, Muskegon, 122 ft. long, built in 1866; schooner Glen Cuyler, owned by Ben Jacobson, Green Bay, Wis., 84 ft. long, built in 1854; schooner Lydia, owned by Thomas W. Morse, Muskegon, 80 ft. long, built in 1874.

Lake Superior: Schooner Alta, owned by John Connolly, Buffalo, 198 ft. long, built in 1884; steamer Oregon, owned by J. A. Calbick, Chicago, 197 ft. long, built in 1882.

its deck, but was unable to approach, again owing to the tremendous seas.

The schooner Tasmania in tow of the steamer Bulgaria sank a few miles west of the southeast shore of Lake Erie. The Bulgaria at the time was towing both the Ashland and the Tasmania. The storm came up very suddenly and almost every sea boarded the vessels. The Bulgaria made several attempts to put back under the lee of the island, but the seas turned her around like a top. About 5 o'clock Friday morning the Tasmania sank and the tow line had to be cut to save the Ashland. Eight lives were lost in the sinking of the Tasmania.

Nine persons went down in the foundering of the Canadian schooner Minnedosa of Harbor Beach, Lake Huron. The Minnedosa was in tow of the steamer Westmount, which was also towing the barge Melrose.

The steamer Joseph S. Fay, which was wrecked at Rogers City, Lake Huron, was in the early days one of the best known vessels on the lakes. She was named

after a noted Boston gentleman and was thought at the time of her construction to be well in advance of the existing type. The Fay sprang a leak off Rogers City and was beached by Capt. Fletcher. The seas washed off the pilot-house after the steamer struck the beach and Capt. Fletcher and most of the crew of fourteen men drifted ashore clinging to it. All the other members reached shore safe, clinging to wreckage, except the mate, David Syze, who was drowned.

Thrilling scenes attended the rescue of the crew of the steamer Mautenec which went ashore in a gale eighteen miles east of Erie. Soon after the vessel struck she began breaking up. With no hope of reaching shore in the frail lifeboats, one of the crew volunteered to attempt the feat of swimming to land with a line. Although nearly exhausted in the breakers he succeeded in reaching shore and making the hawser fast. Over this the entire crew were hauled safely to shore.

The steel tug Frank Perry, owned by Frank Perry, Sault Ste. Marie, sank off Boot island in the Cheneaux group. Several plates were crushed in by the rocks. She can be repaired. The schooner Vega went on the beach south of Ludington at noon while trying to make the harbor in the gale. It was only after a heroic struggle that the life saving crew succeeded in rescuing the threatened sailors.

The schooners Nirvana and Galatea went ashore near Grand Marais, Mich., while trying to enter port for shelter. They were in tow of the steamer Barth, which succeeded in making the harbor. The two schooners missed the entrance and drifted to the westward, the Nirvana sinking a quarter of a mile from shore. The crew of seven men were rescued by the life saving service.

The steamer Western States in making the trip from Detroit to Buffalo was badly battered. The vessel came within a mile of Buffalo harbor, but was unable to make it owing to the blinding character of the storm. Capt. Stewart, therefore, turned around and sought shelter off Long Point. Windows were broken generally and doors torn from their hinges, but the steamer was at no time in danger.

The big steel barge Malta, of the Pittsburg Steamship Co.'s fleet, broke away from the steamer Linn during the storm of Friday morning, forty miles off Thunder Bay island. Through the breaking of pipes, water got into the Malta's forepeak and aftpeak so that she was drawing over 19 ft. She got into the trough of the sea and the water went over her in solid blue masses and everything movable was washed away. The crew finally managed to rig a sail and maneuver her under the lee of the island.

LOSS OF THE KALIYUGA

All hope for the safety of the steamer Kaliyuga, owned by the Cleveland Cliffs Iron Co., has been practically abandoned. She passed the Sault at 5 o'clock Thursday morning last and was sighted about 4 o'clock Thursday afternoon by the steamer Frontenac, seven miles off Presque Isle, and was then steering toward the east shore. The Kaliyuga should have reached Port Huron on Friday afternoon last, but owing to the storm no concern was felt for her safety, as she was regarded as one of the strongest and staunchest of the wooden steamers, and had always been kept in good condition by her owners. However, on Sunday the company became alarmed and telegraphed to every possible port for news of her. None was obtained and the steamers Centurion and Frontenac were sent out in search of her. It was hoped that she had sought shelter among some of

the islands on the east shore of Lake Huron, but as no trace whatever has been found of her, the conclusion is that she must have gone down with all on board in Lake Huron. The Kaliyuga was 270 ft. long, 40 ft. beam, 21 ft. deep, and was built at St. Clair, Mich., in 1887. She was under the command of Capt. L. Tonkin. The other members of the crew were: Charles A. Sharpe, chief engineer; Ernest C. Modder, second engineer; Charles Simmons, first mate; Charles J. Murphy, second mate; Harry Loftanne, steward; Mrs. Loftanne, assistant steward; Thomas Carr, wheelsman; Paul Dettman, wheelsman; Thomas Wright, watchman; George E. Foster, watchman; Charles Beauguard, oiler; Thomas H. Sullivan, fireman; R. McKay, fireman; John Ross, seaman; John Rush, seaman, and John Yottel.

WRECK OF THE TASMANIA

The wreck of the schooner Tasmania east of Pelee island, Lake Erie, was visited on Sunday, Oct. 22, by United States Assistant Engineer Wm. T. Blunt, on the United States tug Spear. The vessel lies on an even keel in 38.5 feet of water, headed west three-quarters south. It is southwest one-quarter south, three miles from Southeast Shoal lightship, southeast six miles from Pelee Passage lighthouse, east-southeast eight miles from Pelee island lighthouse. Both masts with their rigging are standing and may be easily seen several miles away. The mainmast is shattered at its cross head. Proper angles were taken so that the vessel can be found readily if the surface marks are destroyed. The 18-ft. ensign was found floating attached to its halyards—a mute and touching witness of the tragedy it was raised to avert, in a last, silent appeal for help. The flag was cut away to be returned to its owners.

NEW COAL DOCKS AT PORT ARTHUR

Port Arthur, Ont., Oct. 25.—The Barnett & Record Co., which has the contracts for the immense dock of the Pittsburg Coal Co. and the Atikokan Iron Co. here, is pushing work, and the first cargoes of coal will be unloaded in a few weeks. It was the hope of the Pittsburg Coal Co. to receive 1,000,000 tons of coal here this fall, but it will be next year before anything like such a quantity can be taken care of. This company has the contract for all fuel for the Canadian Northern system. The road did receive its coal direct by boat from Cape Breton, unloading it on the Kaministiquia river at Fort William, but this coal did not keep steam, and contracts were given the Pittsburg company for an enormous amount of coal through a series of years.

The dock that is being built will cover 1,200 ft. of frontage and will extend 2,500 ft. back to shore, and will be filled solid. Train after train is now at work filling it solid with sand, while the front is being built of cribbing. The property of the Atikokan Iron Co. joins on the west, and is the same depth and 650 ft. frontage. On this the furnace, coke ovens and other constructions will be erected. The furnace will be ready next fall. It is now proposed to erect a second furnace at once, and this may be commenced in the spring. The ovens will be connected with the coal dock of the Pittsburg company, which is to supply the fuel for coking by automatic overhead bridges.

The government breakwater, running along in front of Port Arthur, is to be extended 1,500 ft. in front of these properties, toward the mouth of the Kam river. Coal dock and furnace plants lie between the river and the immense elevators of the Canadian Northern road.

OUR NEGLECTED MERCHANT MARINE

At the annual meeting of the American Bankers' Association, at Washington, on Oct. 11, the secretary of the treasury, Hon. Leslie M. Shaw, made a strong plea for an American merchant marine, saying in part:

"The time is coming, gentlemen, with our increasing population more largely urban than ever, with factories multiplying more rapidly than farms, with limitless manufacturing resources and matchless aptitude for production, when the United States will need new and important markets. The world may come to us in its own ships for the products of our farms and the raw products of our mines, but it will not come in its own ships for the finished products of our factories. The time is coming when we will need international bankers and international merchants and an international merchant marine. Over one hundred years ago, congress passed an act giving to the American ship builder and the American ship owner a monopoly of our coastwise trade. Since then political parties have passed into forgetfulness and others have come and gone. Administrations have changed again and again, but that old law remains intact. It has been often assailed but no party has dared to repeal it. It, therefore, has the stamp of non-partisan approval. As a result we have the largest and cheapest coastwise trade in the world. The Detroit river floats more tons of American freight than all the foreign commerce that enters London, Liverpool, and New York city combined, and under every ton is a ship built of American materials, by American workmen, owned by American capital, operated by American enterprise, and over every pound floats the stars and stripes. This country certainly possessed some measure of statesmanship in the days of James Madison, and wisdom did not die with the fathers or the law ere this would have been repealed.

"Practically a half century ago the present minority party inaugurated, and the present majority party adopted, a policy of liberality to the promoter. It gave subsidies of money, or subsidies of land, or both money and land, to encourage the construction of trans-state and trans-continental railways. The Union Pacific, the Southern Pacific, and the Northern Pacific railroads each received government aid. These roads opened an empire of matchless resources, and here our ever-increasing population found ample room and abundant opportunity. They improved farms, developed mines, and builded states yielding a commerce which has made these roads in turn self-supporting, so that no county, state, or the general government longer grants aid to new roads. We not only have the largest and best railroad system in the world but the cheapest rates in the world.

Not only has the general government subsidized domestic commerce by direct appropriations from the public treasury in aid of railroads but it annually subsidizes commerce, both domestic and foreign, by large appropriations for the improvement of rivers and harbors. No difficulty is ever experienced in passing a river and harbor bill if its benefits are sufficiently distributed. The markets of South America, South Africa, and the adjacent islands are just being developed. The eyes of the world are upon them. The merchant nations of Europe know where they are located, and they are establishing banks and warehouses within them, and they have already established regular and fast lines of steamers to them. The United States has neither banks nor commission houses nor warehouses in these ports, nor has it means of communication with them, except through old, worn-out,

dilapidated ships, sailing under foreign flags, and making eight or ten knots an hour.

"Iowa was dotted with settlements long before railroads tapped the territory. In those days some grain was grown, and the little that was grown was hauled in wagons. Not until railroads, encouraged by government aid, were built did her commerce multiply, and not until these became of the best did she take rank and contribute abundantly.

"Does any one doubt that an American line of steamships making regular trips to Rio de Janeiro, the government paying the loss until the trade is established, would knock at the door of every factory in the United States, submit samples of the goods consumed by the people, and beg their production and the privilege of carrying them? Does any one doubt that an American line of steamships, in part dependent upon the traffic, would see that our goods were defended?

"We occupy the best position on the map. We have the safest and most convenient form of money in the world. We speak the language of commerce. Our farms produce more than the farms of any other country. Our mines yield gold literally by the carload, silver by the trainload, and there is unloaded on the shores of a single commonwealth more iron ore than any other country produces. Our forests yield 100,000,000 ft. of lumber for every day of the calendar year. Our factories turn out more finished products than all the factories of Great Britain and Germany combined by more than three thousand millions every twelve months.

"We transport this matchless product of farm and factory, forest and mine, from the interior to the sea at one-third what similar services cost anywhere else beneath the skies. We carry it from point to point along the coast in better vessels, on quicker time, and at cheaper rates than others. But at our coast line we are brought to an abrupt halt. Here we are no longer independent. Our foreign commerce is four times as large as forty years ago, but we carry in our own ships only one-third as many tons as forty years ago. We have protected and encouraged every interest but our merchant marine, and every protected interest has flourished. We have every facility for international commerce except international merchants, international bankers, and an international merchant marine. Shall we not have these? I am not urging ship subsidies. I am speaking of results, not of methods. If we will but take advantage of our opportunities we will send these products of farm and factory under every sky and into every port, and make our financial centers the clearing houses of at least a fraction of the world's trade."

BIDS FOR FIELD GUN CARRIAGES

Washington, Oct. 25.—The bureau of ordnance of the war department has just opened bids for another contract covering 20 3-in. field gun carriages of the model of 1902. The Driggs-Seabury Ordnance Corporation submitted a bid of \$3,200 per carriage, one carriage to be delivered in ten months and the others at the rate of two carriages per month thereafter. The American & British Mfg. Co. bid \$3,010 per carriage, delivery of the first carriage to be made in nine months and the remaining nineteen carriages to be delivered in seven months after the date of first delivery. The United States Rapid Fire Gun & Power Co. entered a bid of \$4,332 per carriage, promising delivery of the entire order in twenty-four months. The Bethlehem Steel Co. on a bid of \$3,845.39 per carriage, offered delivery in twenty-four months.

BUILDING TWO IMMENSE PIERS

The two immense wharves that are now being constructed at San Francisco, Cal., are among the largest ever built on the Pacific coast at any time. These mammoth piers are being built by the state of California, and are for the use of the Pacific Mail Steamship Co. That company has already leased these two immense piers for a term of three years, paying therefor the sum of \$85,000 in round numbers. They will doubtless lease them for a much longer term on the expiration of the present lease. Each of these piers is 840 ft. long and 132 ft. wide. They are separated by a slip 840 ft. long and 200 ft. wide. This slip is long and wide enough to admit two of the largest vessels in the world to lie side by side along each pier and receive or discharge cargo at the same time.

The giant piers are supported by huge cylinders composed of concrete. Under each pier are 576 of these pillars—or 1,152 supports in all. The cylinders are arranged in rows or bents, extending across the narrow way of each pier. In each row are thirteen cylinders—five of which are 5 ft. in diameter and eight 4 ft. in diameter. These pillars vary in length from 24 ft. to 60 ft.—the shorter ones being near the shore and lengthening as the pier extends outward.

The huge cylinders are all of concrete inclosed in a wooden casement. This casement is built like an immensely long barrel—of uniform size from end to end. It is built in a "cradle" and fastened very firmly together by means of strong iron bands tightened with screws. These hoops are placed several feet apart. Wherever a smaller cylinder is placed, three piles are driven together in a cluster; where a larger cylinder is placed, four piles are driven. These piles are sawed off just level with the water at mean tide.

The great cylinder is hoisted and lowered over the piles, and after being firmly set down in the bottom is pumped out. Then the space is filled with soft concrete, which is tamped down until it is firmly "fixed." Then it is left to harden. Not only are these pillars capable of supporting an enormous weight, but they will last indefinitely, and better still, are positively toredo proof—those most destructive borers of all wooden piles.

Huge structural steel girders are placed across the tops of the stone pillars, and on these the superstructure is built. As they stand, these piers are very massive, and can bear up safely all the heavy merchandise that may be heaped upon them. On the western pier, a two-story building will be erected, and on the eastern a one-story building will be put up. To cover these two immense buildings it is estimated that 116,400 shingles will be required.

Each pier will have a double railroad track running the entire length, so that cargoes will be transferred from steamer to cars, or from trains to steamer direct, and thus dispense with all teaming, trucking, etc. Work has been in progress for many months already, and these great piers will not be completed for some time. As all the water front of San Francisco belongs to the state, this immense dock improvement is being made by the commonwealth of California. The total cost of these new docks will approximate \$600,000. As the Pacific Mail Steamship Co. owns sixteen large vessels, they require immense docking facilities, and the new docks will greatly relieve the congested condition of affairs.

The total area of each pier is 110,880 sq. ft.; of both, 332,620 sq. ft., including upper story of western pier. The total area of the slip is 168,000 sq. ft.

The bureau of construction and repair has authorized repairs to the monitor Wyoming, at the Mare Island navy yard, which will aggregate about \$40,000. Much of this work will be done in the engine room of the vessel, to the boilers. After the work is completed the Wyoming will probably be placed in reserve.

PACIFIC COAST SHIPPING NEWS

The Italian cruiser Calabria, on a voyage round the world, reached San Francisco Sept. 11, with Prince Ferdinando of Savoy on board. The prince is the eldest son of Admiral Prince Thomas, brother of Queen Dowager Margherita and commander-in-chief of the Italian navy. Prince Ferdinando is a midshipman. The Calabria is a fourth-class cruiser of 3,000 tons, built in 1890. She has twin screws and an ordinary speed of 10 knots, though under forced draft she can make 16 knots. Her armament consists of four 6-in. guns, six 4-in. guns, four 2½-in. guns, four 1½-in. guns, two Maxims and two torpedo tubes. She is fitted with a wireless telegraphy equipment. She carries 262 officers and men, Count Marengo de Moriundo being her captain.

The Calabria left Venice on Feb. 4 and has called at Gibraltar, every important port in the West Indies, Buenos Ayres, Rio de Janeiro, Montevideo, Lima, Valparaiso, Callao and Acapulco. From San Francisco she will go to Honolulu, the Fiji islands, New Zealand, Australia, Borneo, New Guinea, Japan, China, Siam, Calcutta and thence back to Venice.

Vessels bringing the season's pack of salmon from Alaskan canneries began to reach San Francisco the middle of September. A dozen ships brought a total of nearly 600,000 cases, divided as follows: Euterpe, 36,288; C. E. Moody, 57,000; W. W. Case, 17,800; Electra, 28,700; Paramita, 35,000; Indiana, 50,400; Oriental, 58,024; Santa Clara, 40,879; Tacoma, 65,709; Bohemia, 40,404; M. F. Grace, 61,400; Star of France, 59,709.

A steam trawler, to be used in halibut-fishing in the North Pacific ocean, is being built at Philadelphia for the New England Fish Co. of Boston and Vancouver. It will be the first trawler used in those waters.

The merchants of Nome are endeavoring to establish a steamship line between San Francisco and Nome. They complain that they have been overcharged greatly by the steamship companies operating vessels between Nome and Seattle. Excessive rates are charged for the transportation of gold.

The tug Neptune of the United States marine hospital service reached San Francisco Sept. 11, eighty-five days from Baltimore. She will be equipped with steam steering gear and inspected by a board of revenue cutter officers. She will take the place of the General Sternberg in the Federal quarantine service in San Francisco bay. She is a strong, well-built, fast and able boat.

An addition to pier 25, Greenwich street wharf No. 2 in the harbor of San Francisco has been leased by the Board of State Harbor Commissioners to the American-Hawaiian Steamship Co. for \$26,752 for a period of fourteen years and nine months. The contract for building the addition has been given to Robert Wakefield for \$23,877, the contract for the cement required being awarded to the Holmes Lime Co. for \$2,875.

The Toyo Kisen Kaisha Co. has resumed its regular mail, passenger and freight service between San Francisco and the Orient. The America Maru left Kobe Sept. 28 for San Francisco. The Hongkong Maru and the Nippon Maru were used during the Russo-Japanese war as auxiliary cruisers, but have been turned back to the steamship company and will resume their places on the regular schedule.

The Solace left Mare Island, Cal., on Sept. 12 with a draft of men for the U. S. S. Concord, which was put into commission at the Bremerton navy yard. She also carried stores for the ships of Rear Admiral Goodrich's fleet, and as soon as these were discharged was to return to Mare island and go out of commission. She was ready

to sail when the commandant of the Bremerton navy yard, Capt. William T. Burwell, within whose jurisdiction she is, gave orders to detain her. Meanwhile great efforts are being made to induce the navy department to put her out of commission at Bremerton, so that the extensive repairs upon her may be done there. Orders to put her out of commission were received at Mare island before she left that place, but were not delivered to the ship.

Rear Admiral Washington L. Capps, chief of the bureau of construction and repair of the navy, is on a tour of inspection of the navy yards of the United States. As the admiral strongly opposed the appropriation for building ways and supplying other equipment to the Mare Island navy yard, Cal., it is considered highly important that he should visit it and judge for himself what its needs are.

CHARTERS FOR WHEAT

Duluth, Minn., Oct. 25.—A very large amount of wheat, especially of the so-called durum variety, is chartered for shipment at once. It is estimated that sales of durum have been made for immediate export up to more than 6,000,000 bu., and these sales are continuing day after day at the rate of from 20,000 to 50,000 bu. This is a new variety of wheat, introduced by the department of agriculture, and ridiculed for two years by millers and their organs, but it is certainly making its way. It is very satisfactory to farmers, for they can get 50 percent more wheat to the acre, and now they are getting as good a price for export as they could of any other variety. It is selling Buffalo for more than a cent above No. 1, Manitoba, and is above Kansas No. 1. The American milling fraternity refuses to use it, for trials a year or two ago seemed unsatisfactory, but the foreigners seem to have learned the secret of successfully milling it.

Charters have been made of about 3,500,000 bu. wheat and flax here for winter storage on board ship and spring delivery at Buffalo, at varying prices. Receipts of grain are large at the head of the lakes, but wheat and barley seem to be slow, while flax is increasing materially.

The Cargill Commission Co., of Minneapolis, has plans for a 750,000 bu. steel working elevator and a number of steel tanks, which it is to build either here or at Minneapolis, the location not yet settled. It is probable the houses will be built here. They will have capacity for about 2,000,000 bu., and the working house is designed to be the most modern yet constructed on the lakes.

AROUND THE GREAT LAKES

The steamer Republic ran on Major Shoal during the heavy snow storm last week.

The steamer Pahlow put into Sheboygan with disabled steering gear. Repairs were made at that port.

The Edward Hines Lumber Co. has purchased the steamer H. W. Sawyer and barges A. C. Tuxbury and C. E. Redfern.

The steamer Nyanza broke down in the storm after leaving Chicago and had to be towed back for repairs. The main steam pipe was broken in the heavy sea.

The steamer James P. Walsh recently unloaded a cargo of 9,304 tons of soft coal at the dock of the Milwaukee Western Fuel Co., Milwaukee, in thirty hours.

The passenger steamer Tionesta, bound down, stranded in a snowstorm just before entering the Canadian canal and was released after lightering 250 tons of freight.

The passenger steamer Indianapolis, which has been operated in the Michigan City-Chicago run by the Indiana Transportation Co., has been sold to the Alaska Steamship Co. of Seattle.

Capt. Charles L. Hutchinson of Cleveland has organized the Tonopah Steamship Co. to operate the Joseph G. Butler Jr., which will be launched at the Lorain yard of the American Ship Building Co. next month.

The Canadian marine department has formally notified Capt. Tigue, of Cleveland, owner of the wrecked steamer A. A. Turner, that the wreck must be immediately removed from the channel at Spanish River, as it is blocking navigation.

The keel blocks for the construction of the first of the two 600 ft. freighters for the Pittsburgh Steamship Co., were laid at the South Chicago yard of the American Ship Building Co. on Tuesday. The keel will probably be laid about Nov. 1.

The White Star Line tug Hudson was crushed between the steamer Huron and the steamer Ramapo in Buffalo river on Saturday afternoon last and sank, with Thomas Smith, fireman, who was drowned. The captain and engineer were rescued.

J. C. R. La Flamme, a former lecturer of Savat University, and president of the Royal Society of Canada, has been appointed by the International Waterways Commission as geographical expert to make a report upon the receding of the Canadian side of Niagara Falls.

The steamer A. A. Turner parted her wheel chains and drifted on St. Mary's Rock in little Detroit passage, St. Mary's river, last week. At the same time the vessel caught fire, the crew making their escape on a passing tug. The Turner was owned by Patrick McTigue of Cleveland and was built at Trenton, Mich., in 1873.

The license of Capt. Frank Swails of the steamer Iroquois has been suspended for six months by the United States steamboat inspectors of Chicago for not responding to the cry "Man overboard." John McHughes, a sailor, who had fallen into the water by fastening a fender on the steamer's side, was drowned. Capt. Swail's excuse was that he had seen a boat put off from the light-house to the rescue.

Capt. Joseph Lawson of the tug Conneaut of the Great Lakes Towing Co.'s fleet, is receiving the congratulations of his fellow tugmen on excellent seamanship in handling his tug during the gale last week. He guided his tug in a very heavy sea to pick up a sailor who had been washed overboard with a quantity of lumber from the barge Unadilla. Capt. J. J. H. Brown of Buffalo sent Capt. Lawson a bouquet of chrysanthemums with a card of appreciation.

OBITUARY

Capt. James C. Hume died at St. Catherines, Ont., last week, as the result of a fall. He was seventy-six years old and sailed many boats on the lakes.

Capt. Albert N. Gibbs, of Milwaukee, the well-known insurance adjuster, died suddenly of heart disease at Chicago last week while inspecting the damage to the steamer Brazil.

PERSONAL

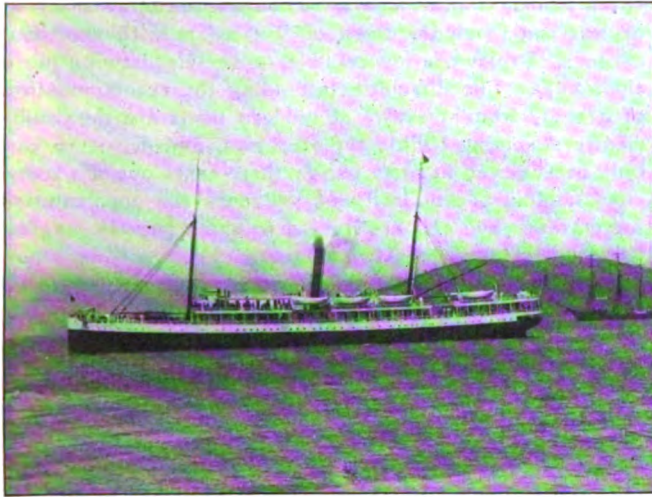
Mr. S. G. Cooper has been elected president of the Republic Iron & Steel Co. Charles S. Guthrie was elected chairman of the board of directors.

W. H. Smith has been appointed manager of the Canada Atlantic Transit Co. and the Canada Atlantic Barge line, which are a part of the Grand Trunk system.

The battleship New Jersey, building by the Fore River Ship Building Co., Quincy, Mass., will be given her trial trip in the near future. Some course other than the Cape Ann course will be selected, owing to the shallowness of water on that course.

WRECK OF THE ST. PAUL

The steamship St. Paul which was recently purchased from the Alaska Commercial Co. by the Harriman Line, ran on the rocks near Point Gorda, thirty-five miles north of Eureka, Cal., while en route from San Francisco to Portland. She was fifteen miles out of her course, having



STEAMER ST. PAUL.

lost her reckonings in the dense fog that prevailed. The steamer was abandoned by the owners to the underwriters. The St. Paul was comparatively a new vessel, having been built in 1898 at the Union Iron Works, San Francisco. She was 280 ft. long, 38 ft. beam and 19 ft. 6 in. draught. The officers of the St. Paul were Capt. Clem Randell, Chief Engineer E. P. Houghton, Chief Officer E. J. Mason and Purser C. F. Hayward.

ITEMS OF GENERAL INTEREST

Mr. Charles N. Schwab in a recent interview in San Francisco stated that it was his intention to enlarge the Union Iron Works and to improve it in many ways.

L. A. De Mayo, stevedore of the American line at New York, has been awarded a patent on his apparatus for coal-ing vessels. This device was described in the July 6th issue of the *Marine Review*.

The eleventh annual convention of the Ohio Valley Improvement Association will be held at Cairo, Ill., Nov. 15, 16 and 17. This association was formed for the purpose of connecting Pittsburg with tidewater.

The Michigan Steel Boat Co. has bought the old Detroit railway car barns property on Jefferson street from the Olds Motor Works. About 700 men will be employed in the building of motor boats and canoes.

The new cruiser Charleston was placed in commission at the navy yard, Norfolk, Va., Oct. 17, with Capt. Herbert Winslow in command. After her official trial trip in January the Charleston will be sent to the Pacific station as flagship of the Asiatic fleet.

The steamer Roddam, which made a famous escape from St. Pierre during the eruption of Mt. Pelee with her deck strewn with the dead and so scorched and burned that one could scarcely recognize her as a ship, was recently abandoned in the Yiemesei river where she run ashore.

The two new steamers building on the Clyde for the Canadian Pacific Railway Co. will be christened Empress of Britain and Empress of Ireland. They will run between Liverpool, Quebec and Montreal at the beginning of next season. The steamers are 507 ft. long and 65 ft. beam.

The seventh annual meeting of the Manchester Liners, Ltd., was held last week at Manchester. It appeared

from the directors' report that the year's trade had resulted in a profit of £15,521 and after the payment of debenture interest and fees, there is a credit balance of £1,284.

The four-masted schooner Hope Sherwood recently made the trip from Sandy Hook to Fernandina, Fla., in 2 days, 19 hours and 10 minutes, the distance being 734 miles. The schooner rounded the hook in a brisk nor'wester and had the wind straight over her stern for the balance of the trip.

The outlook for business in the wooden ship yards at Bath is promising. In addition to the contract for a six-masted schooner placed last week by J. S. Winslow & Co., of Portland, Me., with Percy & Small, Bath, Me., the Kelley-Spear Co. has received an order for a car float to be 260 ft. long, 37 ft. 2 in. beam and 11 ft. 2 in. deep.

A dispatch from Liverpool says that a signal bell has just been fitted in the Northwest lightship at the north of the Mersey by the North Marine Signal Co. of Boston. The *Lucania* of the Cunard Steamship Co.'s fleet was the first ship to test the apparatus. Though the steamer was under full speed, the bell was heard on board at a distance of 9½ knots.

A company known as the Guyan Valley Fuel Co. has been formed by Col. J. C. Beebe and others for the purpose of constructing a new coal harbor at Huntington, W. Va. The officers of the new company are: President, E. P. Merrill, Holden, W. Va.; vice president, A. F. Holden, Cleveland; secretary and treasurer, W. H. Collidge, Boston; general manager, J. C. Beebe, Huntington.

Notwithstanding its long line of water front, the necessity for greater docking facilities at San Francisco is becoming more apparent. The Chamber of Commerce of San Francisco has just adopted a resolution urging the improvement of Islais creek and India basin to increase dock accommodations. The proposed improvement would provide 10,000 lineal feet of new dock facilities.

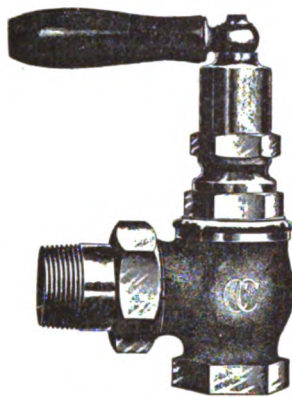
Everything is in readiness for the official government speed trial of the battleship Rhode Island on the Cape Ann-Cape Porpoise course on Oct. 31. The contract of the Rhode Island calls for a speed of 19 knots, and her builders, the Fore River Ship Building Co., expect that she will exceed this. Ever since the Rhode Island was launched, May 17, 1904, remarkably quick work has been done on her. Her sister ship, the New Jersey, also completing at Quincy, will in a few months make her trial trip.

It was announced at the navy department this week that the Bennington had been placed out of commission at the Mare Island navy yard, where she will undergo the extensive repairs which are necessary to place her in condition for active service again. The bureau of construction and repair of the navy department has not as yet received the report of the board of survey on the Bennington, so it is impossible to state what repairs to the ship will cost. The Dixie is to be placed out of commission at the League Island navy yard, where she will receive extensive repairs to her boilers.

The Queens, the last of the four ferry boats built by the Maryland Steel Co. for the public ferry service of New York city, underwent her trial trip last week. It was eminently successful. On board were Capt. John H. Thompson, of the Maryland Pilots' Association, who navigated the vessel; Mr. M. V. O'Neill, who adjusted her compasses; Mr. J. W. Millard, the naval architect under whose supervision the ferries were built; Mr. A. G. Wilson, general manager of the ship building plant of the Maryland Steel Co.; Mr. H. A. Magoun, of the machinery department; Supt. J. T. Martin and Chief Clerk Wat-
waugh.

SELF-PACKING STEAM RADIATOR VALVE

Crane Co., Chicago, have recently put on the market the self-packing quick-opening radiator valve shown herewith. The self-packing feature precludes any possibility



QUICK OPENING RADIATOR VALVE.

of these valves leaking at the stuffing boxes. By a special device placed in the stuffing boxes the packing is automatically kept tight and will last a long time without renewal. The device consists simply of a vulcanized washer, located in the top of the stuffing box, and kept in position by spring compression, which fully compensates for the wear on the washer. The valves open and close by turning the lever handle one-half turn. This handle can be operated by the foot as well

as by hand. When closed the discs bear on the seats very tightly and the valve is locked in place until released. The bonnets of these valves are interchangeable with the bonnets of Crane regular radiator valves, allowing the user of the old valves to equip them at any time with the new improvement.

INSUFFICIENCY OF DEPTH IN PORTS

Engineering of London, referring to the recent advance in the dimensions of steamers, deals at some length with the accessibility of ports. There are only two—or at the most three—of the European and American ports which can be considered invariably accessible to a vessel of 30 ft. draught—by no means an unusual dimension. These are Marseilles, Genoa, and Tacoma—ports all favored with a seaboard situation and a negligible fluctuation of tidal level. It is true, no doubt, that the vessel could reach New York, Quebec, San Francisco, and Southampton fairly constantly, and that she could penetrate the Mersey and the Thames as far as Liverpool and London respectively, under but slight restrictions. But in all other cases the period of access is stringently limited, if not absolutely non-existent. The vessel could only reach the docks at Barry at high water generally, and those at Havre, Hull, Cardiff, and Avonmouth at high water of spring tides, and of a few neaps. Glasgow, Emden, Antwerp, and Boston, U. S. A., would also be temporarily accessible, but at low water of certain tides the vessel would lie stranded alongside of quays, with results which would certainly be serious, and might easily prove disastrous. She might just—though it is doubtful—achieve a passage to Amsterdam. On the other hand, she could never hope to arrive at either Hamburg, Bremen, Dunkirk, or Rotterdam. The case of Hamburg is deplorable in the extreme. The Elbe does not afford a draught greater than 27 ft. on an ordinary tide. Excepting for an hour or so, on one or two occasions fortnightly, the Mersey channel is always navigable to vessels drawing 30 ft. of water. In the case of the Thames there is a minimum depth of 24½ ft. at low water of tides in the channel off Southend, succeeded at high water by a maximum of 43 ft. up to Tilbury docks, and 37 ft. up to the Albert dock. In the Scheldt the navigable depth ranges from 26¼ ft. at mean low water to 50 ft. at mean high water. The docks only afford a draught of 22½ ft. to 25 ft. over their entrance sills. Consequently, a 30-ft. vessel would have to berth alongside the river quay, and at the utmost she might possibly remain there without

grounding during a few neap tides. The depth in the central approach channel at Havre does not exceed 30 ft., except at high water of spring tides, and the average for ordinary neap tides is as low as 25 ft. 9 in. At Dunkirk high water of ordinary spring tides only reaches 29 ft. 6 in. above the bed of the channel, from the roadstead to the outer harbor. Although the depth in the new Maas-haven attains 31 ft. at high water, only vessels drawing 27 ft. or less can reach the town of Rotterdam with unbroken cargoes. Bremen is inaccessible to vessels drawing more than 20 ft. The difficulties attending the accommodation of a 30-ft. draught vessel at modern ports are thus sufficiently striking. Uninterrupted arrival and departure can only be achieved in some two or three cases out of a score cited, and in the majority of instances the opportunities for entrance and exit are limited to short periods ranging from a few hours to a few minutes. From a commercial point of view this is anything but a satisfactory state of affairs.

COMPARISON OF RAILROAD FREIGHT RATES

A comparison of freight rates on the railroads of Europe, operated or controlled by the state, with those in force in the United States, proves that the latter have not only reached a much lower level of rates but show a much more rapid decline. In Russia, only, the rates, while higher, are somewhat comparable with those in the United States. In 1890 the average Russian rate per ton-mile was 1.14 cents and in 1900 it was 0.84 cents. But the low rates in Russia, necessitated by the long distances covered, frequently by goods for exportation, were accompanied by rapidly diminished net earnings per mile and an absence of profits.

While the average passenger rates are lower abroad than in this country, the service is usually so inferior as to make the comparisons valueless. But freight traffic is vastly more important than passenger travel. The following table shows the average freight rates per gross ton per mile in cents from 1870 to 1902.

Years.	United States.	France.	Germany.	Austria.	Hungary.	Italy.	Russia (European)
1870	1.89	1.78	....	....	....	*1.95	....
1880	1.23	1.68	....	1.81	....	1.97	....
1890	.94	1.54	1.34	1.39	1.38	1.64	1.14
1891	.90	1.51	1.33	1.36	1.28	1.63	1.06
1892	.90	1.51	1.33	1.33	1.25	1.63	.95
1893	.88	1.48	1.32	1.32	1.25	1.63	.99
1894	.86	1.47	1.32	1.31	1.25	1.63	1.00
1895	.84	1.45	1.32	1.30	1.24	1.63	.98
1896	.81	1.44	1.32	1.32	1.27	1.63	.95
1897	.80	1.42	1.29	1.27	1.26	1.63	.80
1898	.75	1.39	1.27	1.23	1.25	1.60	.86
1899	.72	1.35	1.24	1.22	1.27	1.58	.87
1900	.73	1.32	1.22	1.24	1.25	†	.84
1901	.75	1.33	1.23	1.24	1.26	†	....
1902	.76	1.33	1.22	1.26	1.24	†	....

* For 1872. † Data not comparable with earlier years.

Unfortunately the British railroad statistics do not show the distance over which the freight is carried, so that it is impossible to compare the rates per ton per mile during the different periods. This omission in the British statistics makes international comparisons of the amount of rates unsatisfactory.—[H. T. Newcomb, Washington, D. C.]

In speaking of the improvement of the St. Lawrence river, Hon. Raymond Prefontaine, minister of marine, says that it is his intention to widen the channel at Cape la Roche to 650 ft. The river bed at this point is of rough shale, which will be somewhat difficult substance to work in. Eventually the channel will be widened at Crane island and St. Augustine.



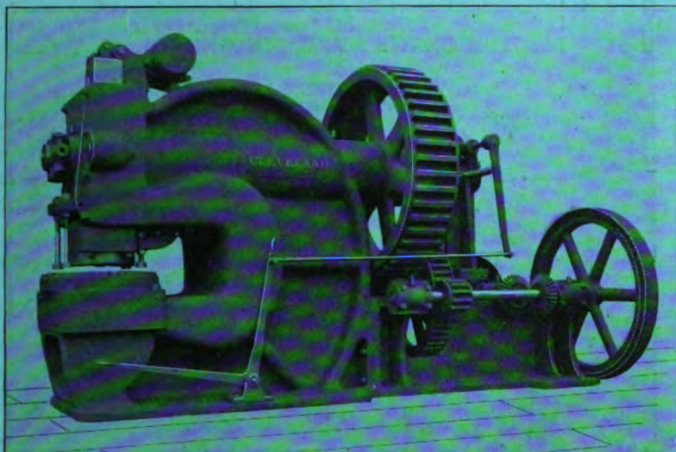
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CLEVELAND, OCTOBER 26, 1905.

No. 17.

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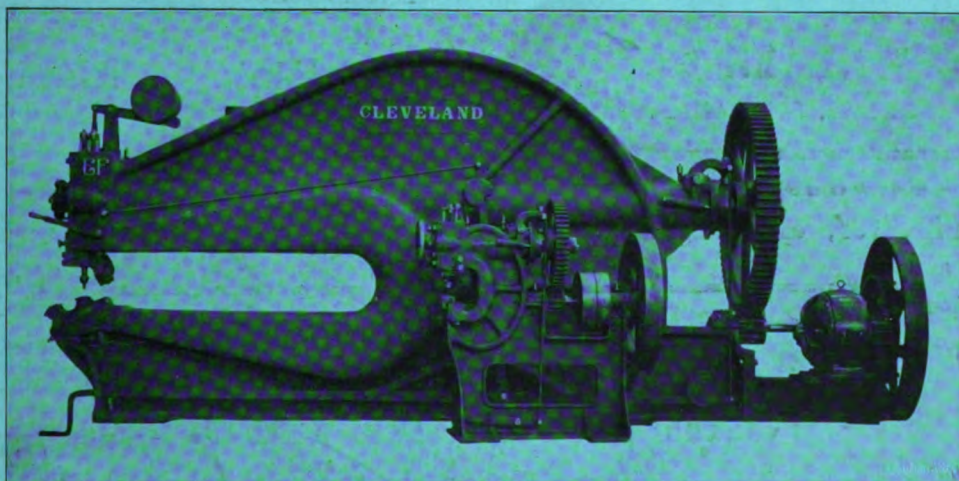
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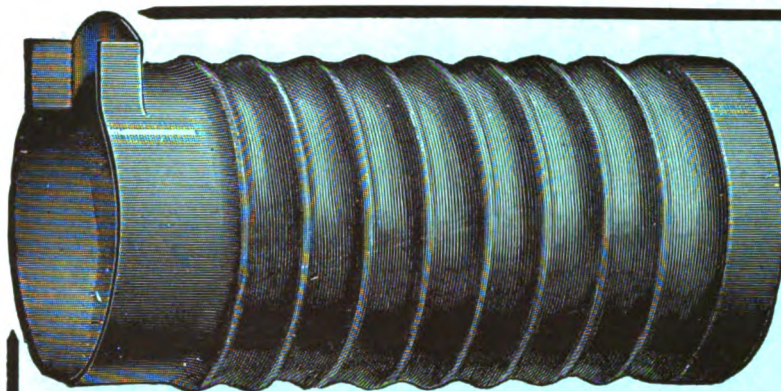
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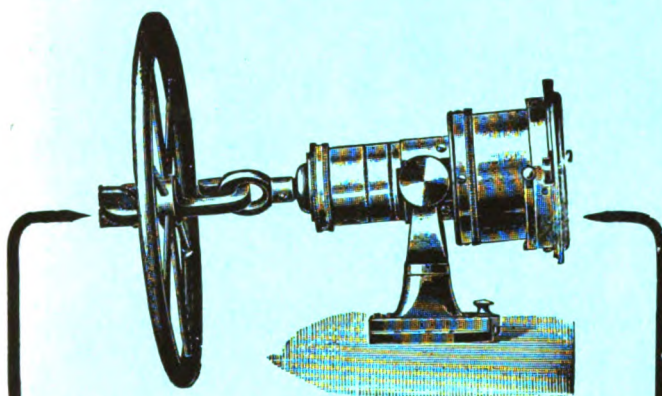
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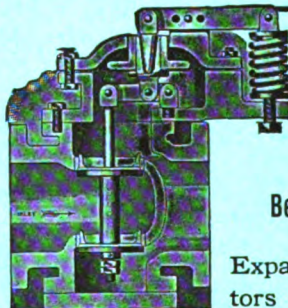
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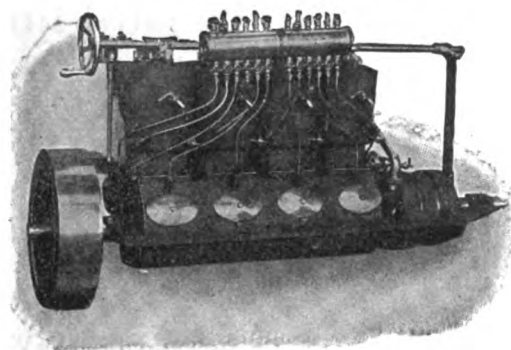


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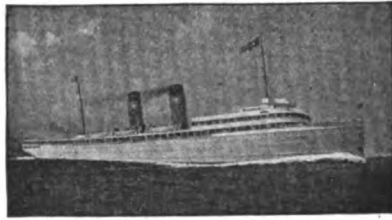
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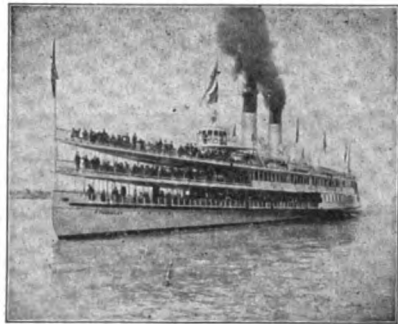
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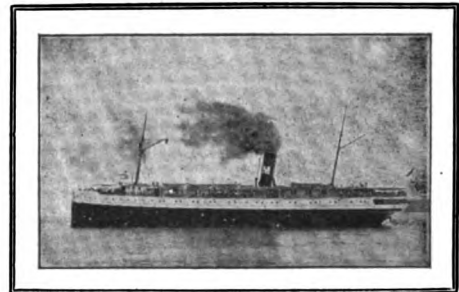
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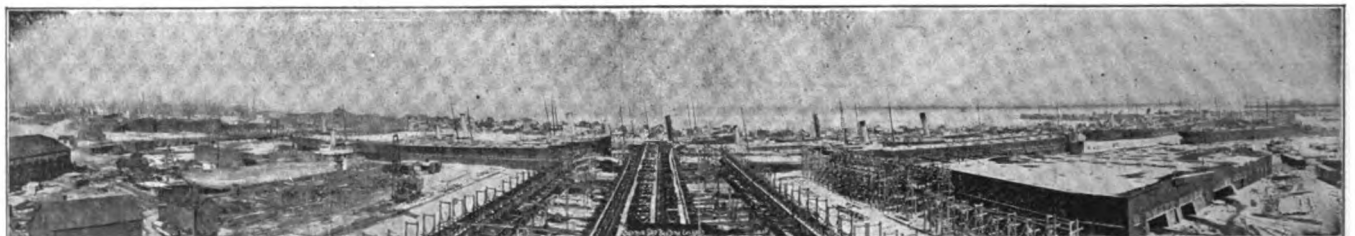


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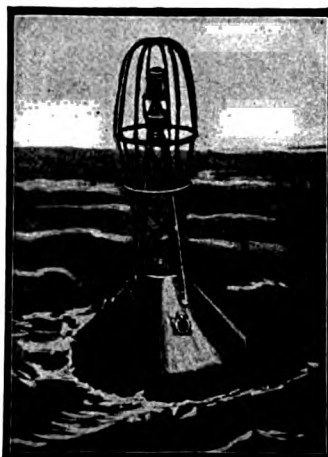
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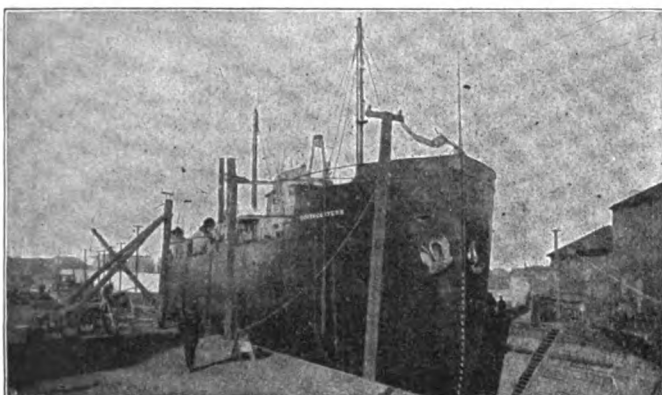
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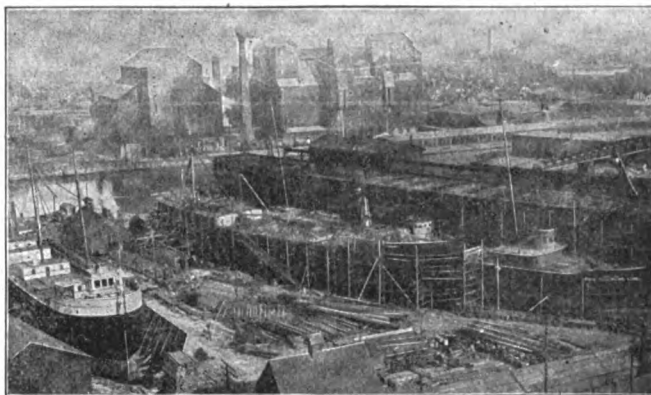
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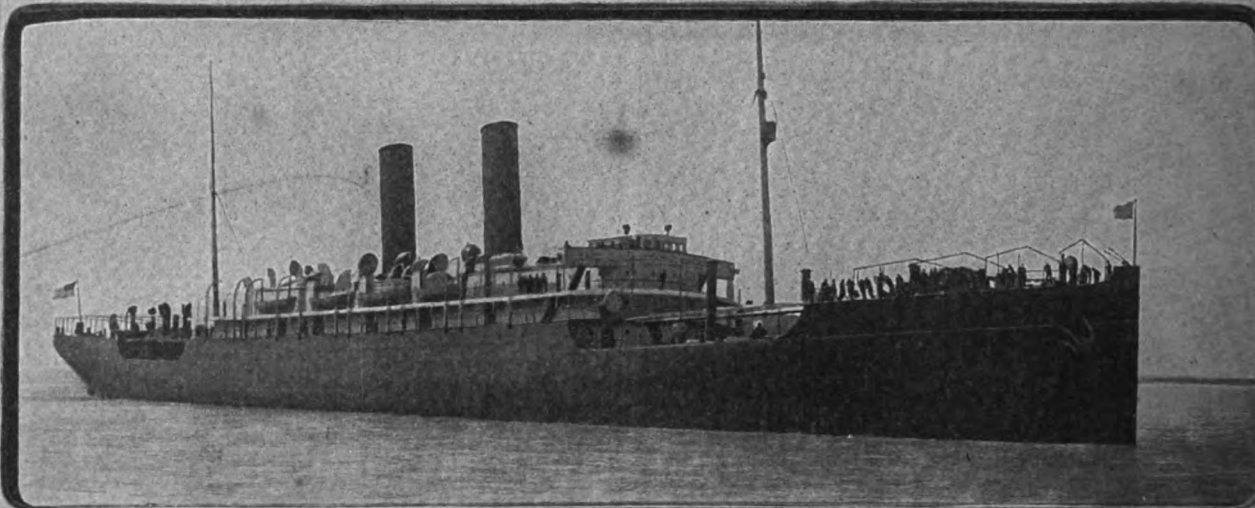
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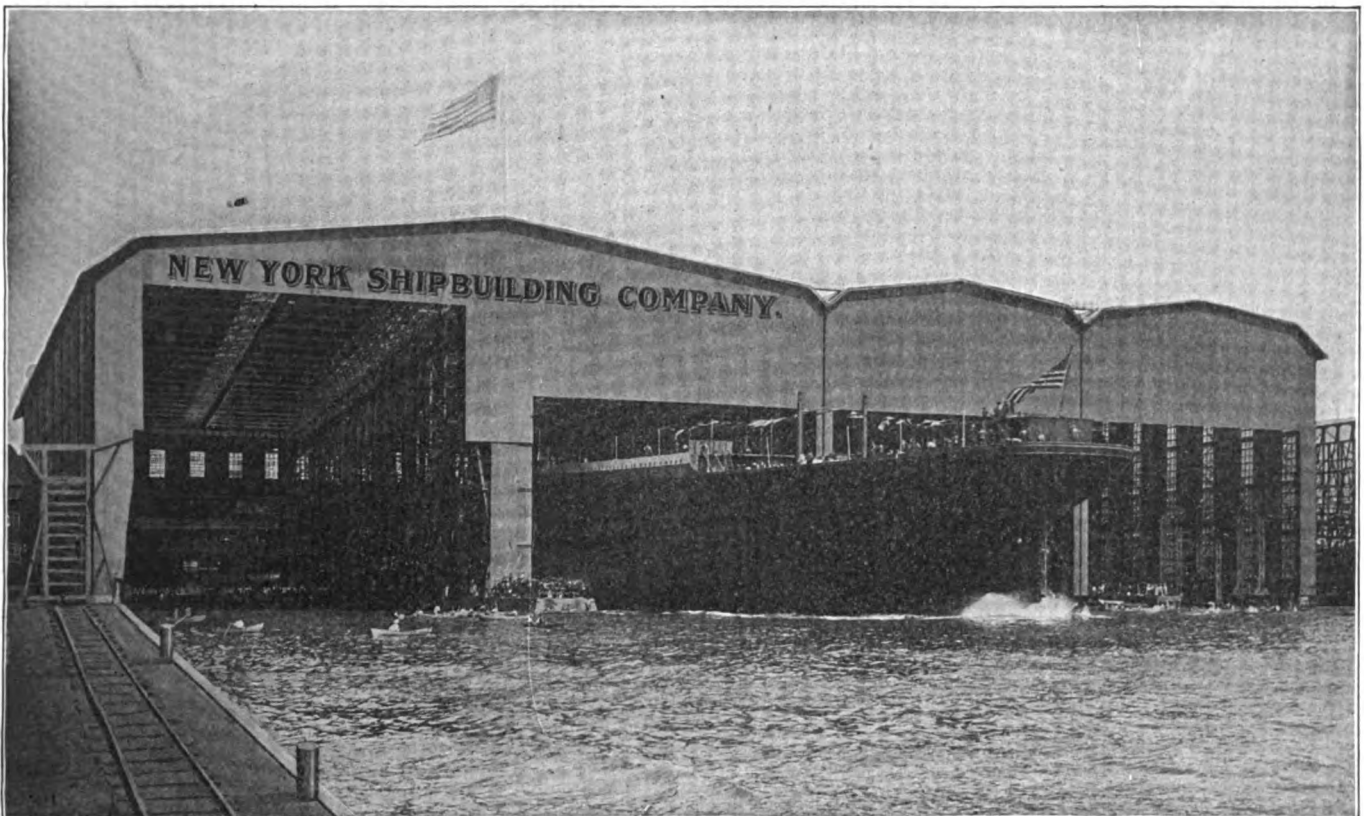
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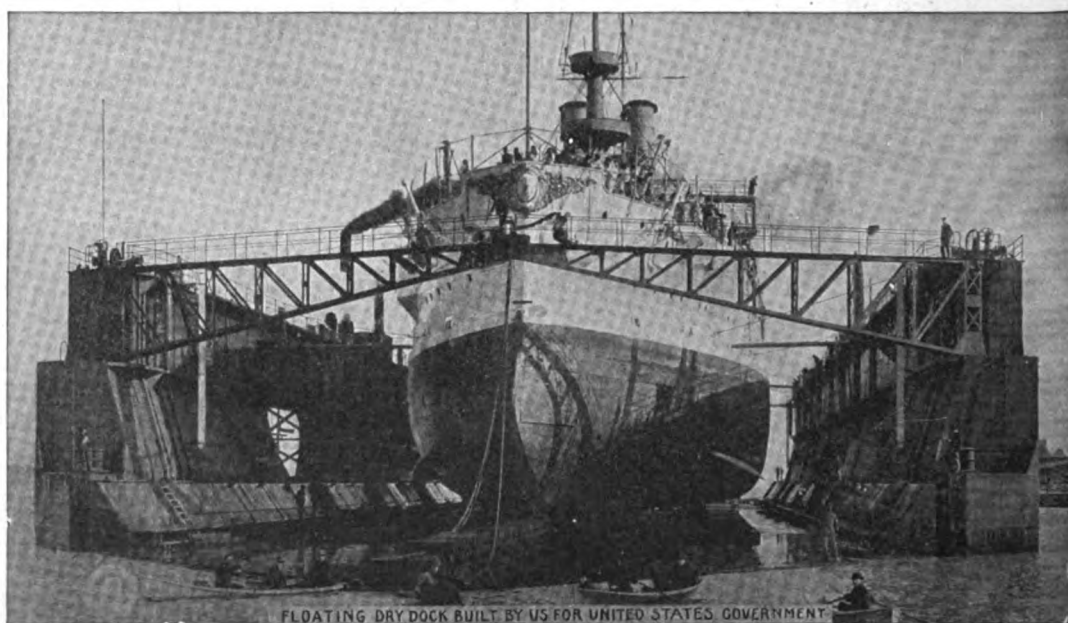
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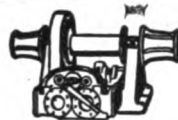
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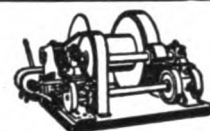
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Poe Lock, from below, open.
Poe Lock, from above.
Poe Lock, with Whaleback.
Whaleback Str. Pathfinder in the Locks.
St. Marys River, South from the Locks.
Weltzel Lock, from above.
Weltzel Lock, from below.
Str. North Land Passing Locks, two views.
Upper Entrance to Lock Canal.
Gate Mechanism.
Interior of Power House.
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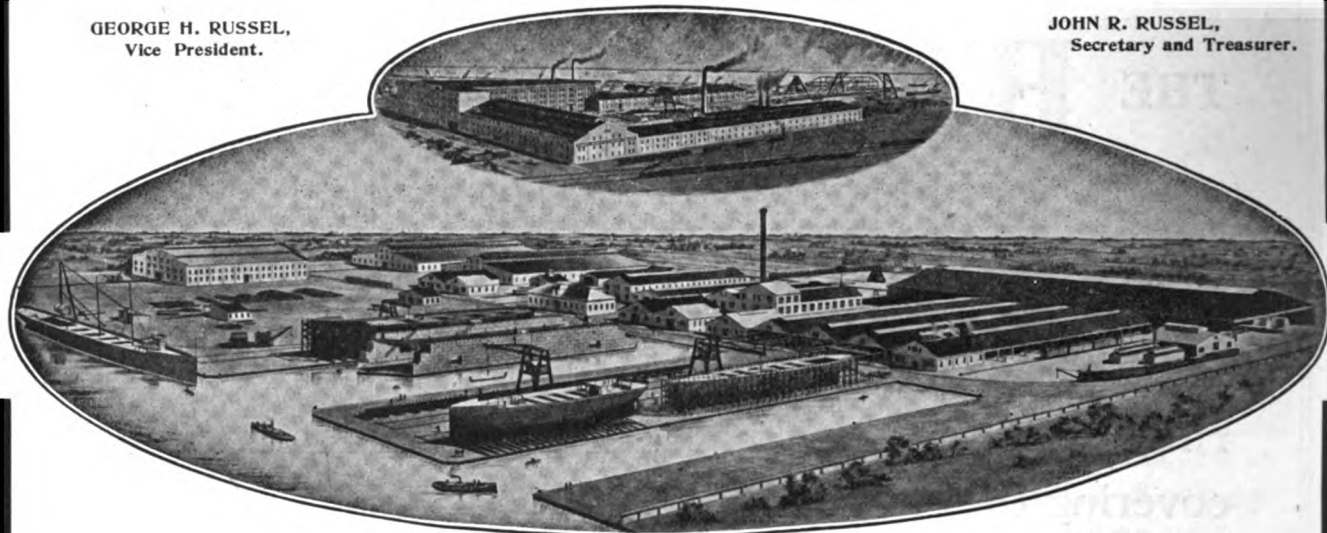
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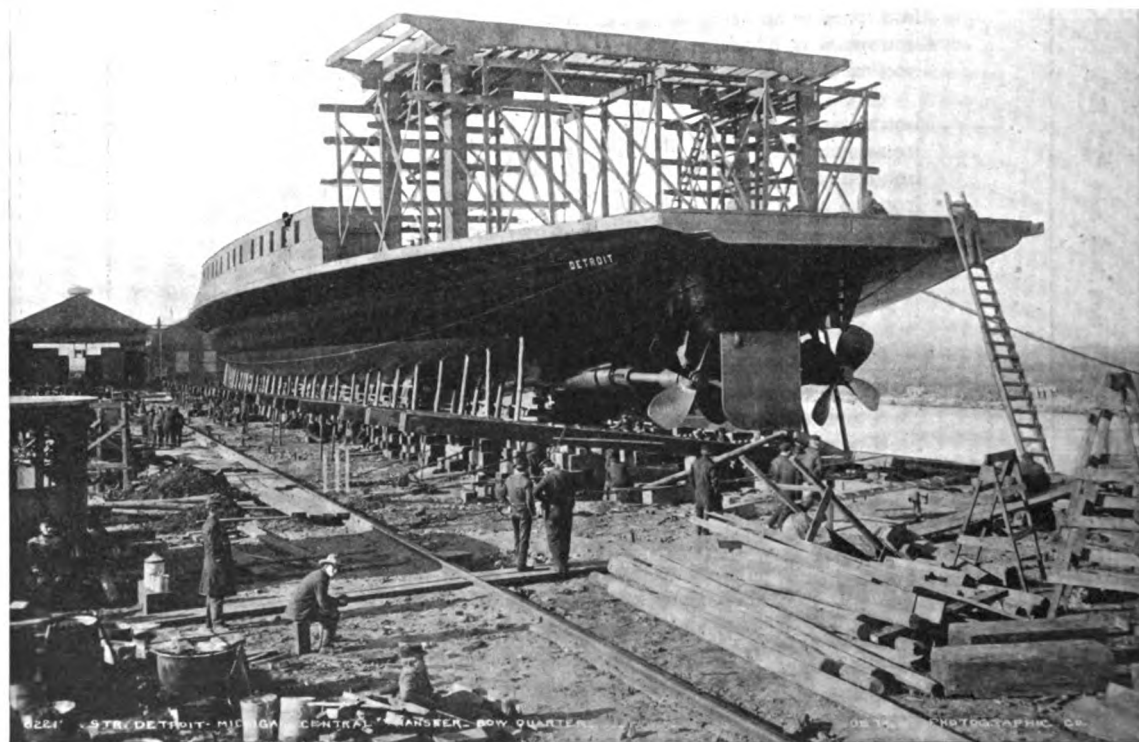
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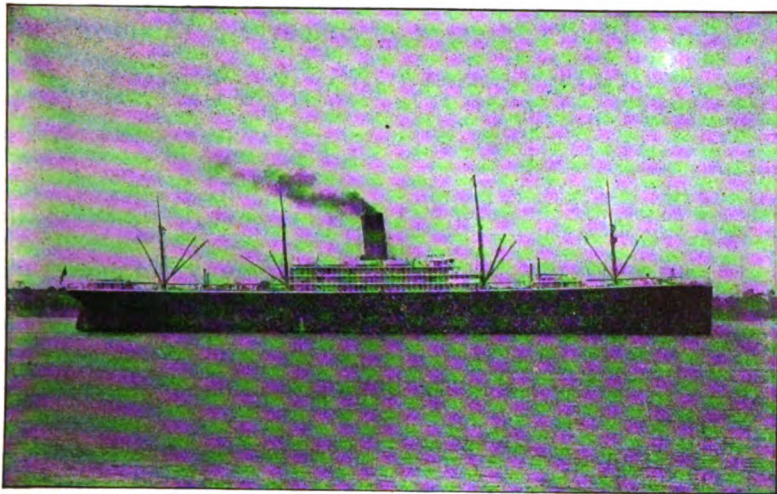
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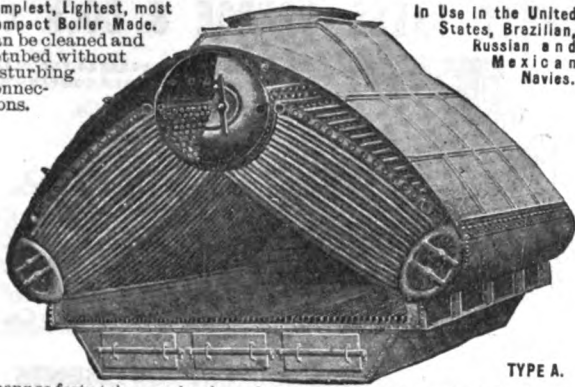
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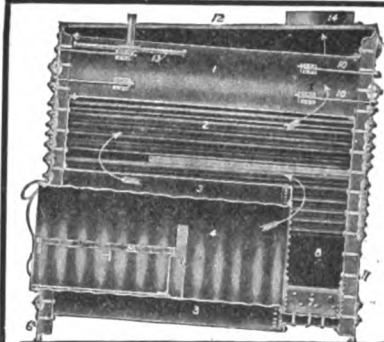
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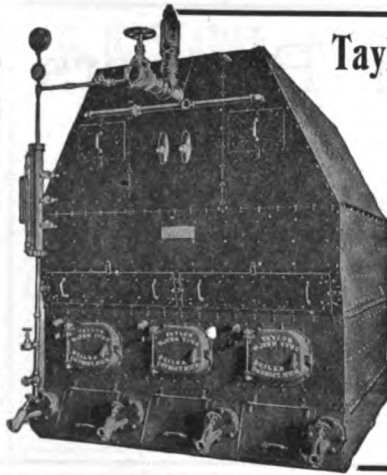
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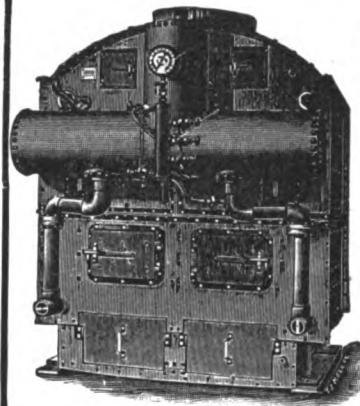
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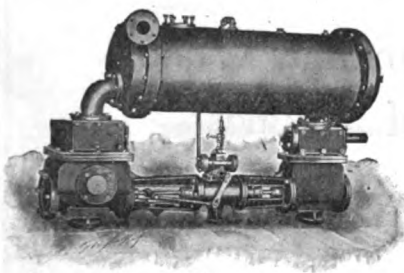
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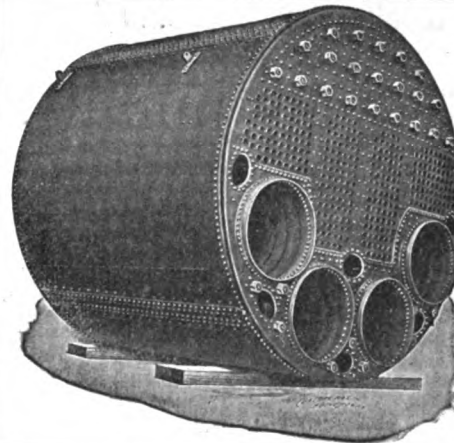
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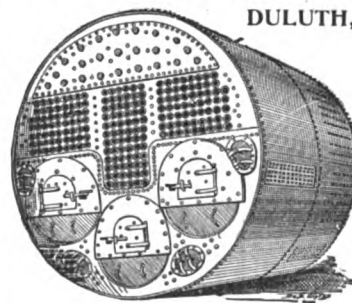
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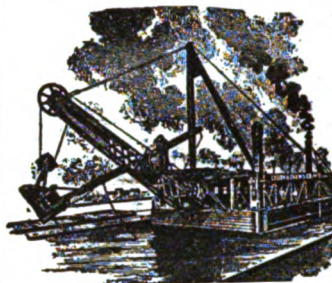
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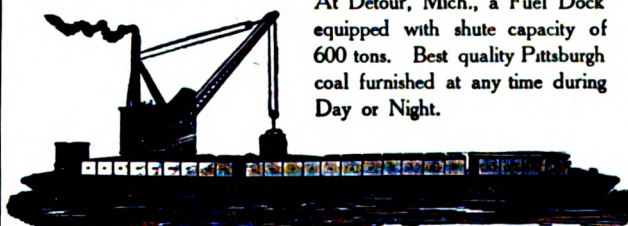
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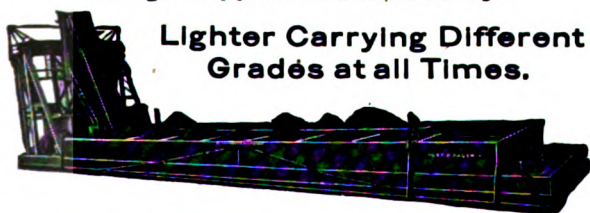
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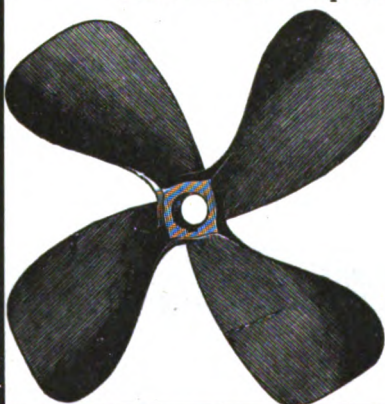
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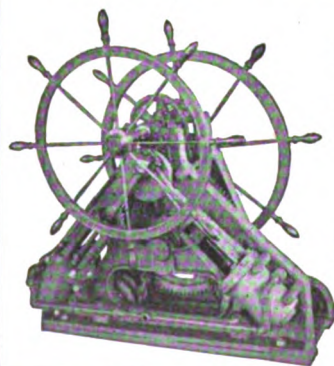
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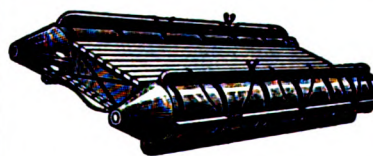
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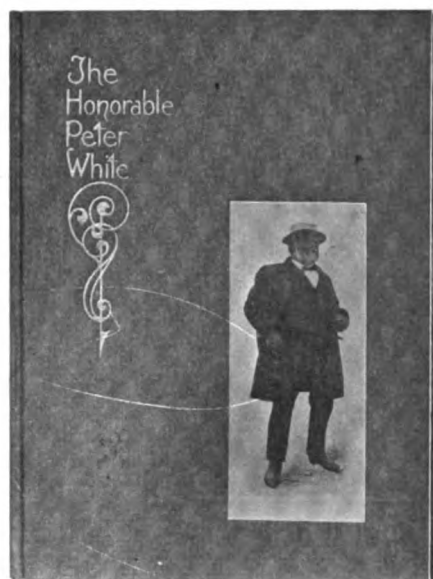
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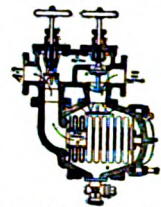
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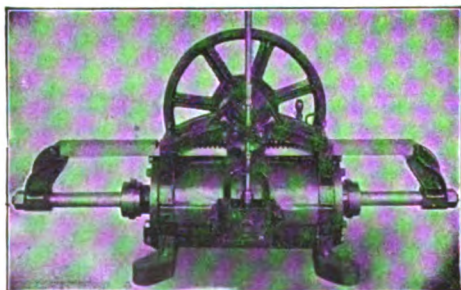
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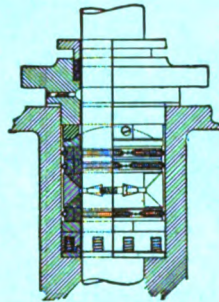
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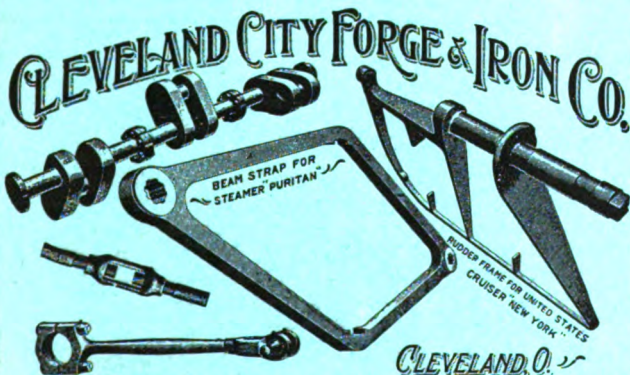
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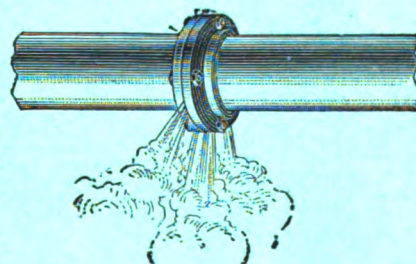
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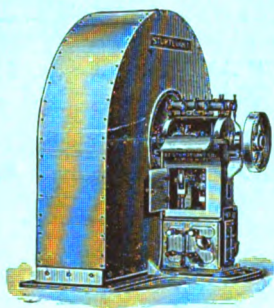
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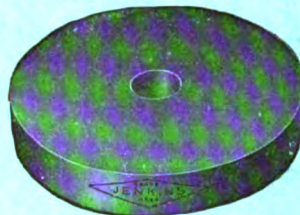
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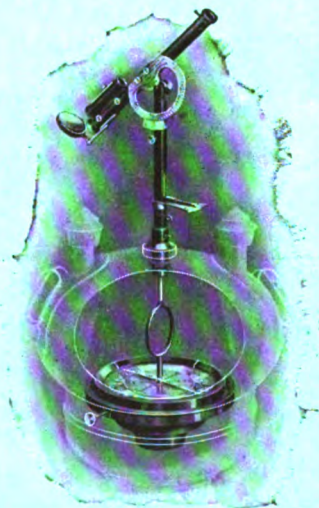
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